

# American Artisan

Founded 1880

The Warm Air Heating  
and Sheet Metal Journal

Vol. 98, No. 15

CHICAGO, OCTOBER 12, 1929

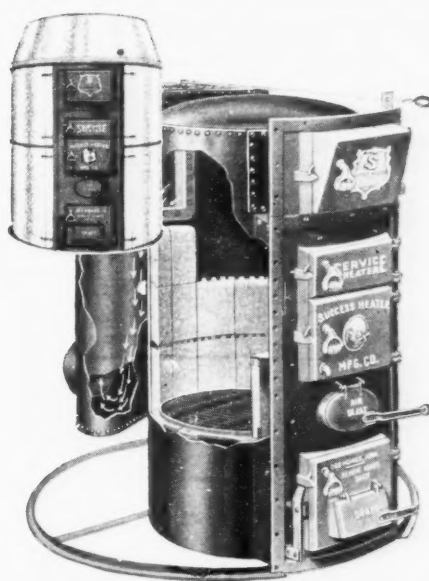
\$2.00 Per Year

The  
sales  
cooperation  
we give  
**SUCCESS  
DEALERS**

gets  
results—

It is  
dominant—  
practical—

Ask for  
the  
"BIG SUCCESS IDEA"  
a book  
containing  
a  
complete plan  
for  
increasing sales  
of



**S**UCCESS was the first to popularize high quality furnace construction—the first to prove to dealers that high quality could be sold easier if merchandised.

Success dealers sell a line that is *complete* and above par in features that count.

They sell better heating with better furnace design and construction.

Analyze Success construction and you will see why public favor is switching to Success dealers—you will see why with the Success line and Success sales plans you, too, can build a better business and better profits.

*Write for the Success catalog  
showing the complete line.*

**SUCCESS HEATER MFG. COMPANY**  
DES MOINES, IOWA

## SUCCESS HEATERS



MR. JACK STOWELL  
Aurora, Illinois



MR. CARL MUELLER  
Findlay, Ohio



MR. EDWARD BRANDES  
Madison, Wisconsin

The

Dealer Merchandising

Board of the

Premier

Warm Air Heater Company

after session in

Dowagiac, Michigan, Sept. 26th

Announce

their Inspection

and Approval

of the new 1930

Premier Sales Plan

## NOTE

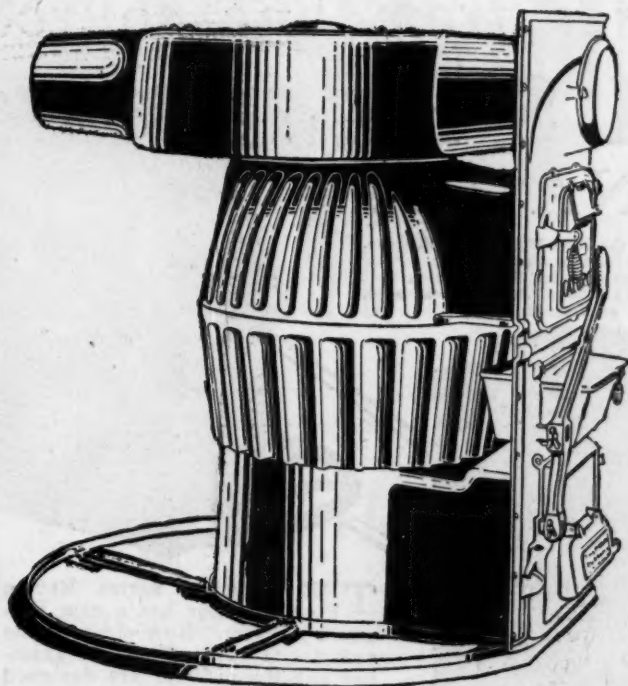
IN the language of the Board, the new 1930 Premier Sales Plan marks "The Dawn of a New Day in the Furnace Industry." Details will be given progressive Dealers by appointment and in the order their requests are received.



MR. CARL ROELLE  
Columbus, Nebraska



MR. ALEX FRIEDMAN  
Detroit, Michigan



## A MASTER FURNACE

**M**ADE with every convenience for the user, and with so many points of excellence that it is easy for the dealer to sell. A staunch, durable, dependable, and economical furnace, manufactured and backed up by a concern with fifty years' experience in warm air heating.



## NOTICE THESE SELLING FEATURES

Roller bearing agitator type of grate

Upright waist high shaker handle

One or two-piece double ribbed firepot

Large corrugated feed section

One-piece seamless radiator with smoke and cleanout collars cast on

Full cast front with expansion joint

Large well-proportioned corset type casings with one-inch air space insulation

Low construction for shallow basements

Deep well designed cup joints

Velvet smooth uniform castings

Large water pan with lock-open cover

Attractive dealer franchises open in many places, send for catalogs and dealer proposition.

## SEND YOUR REPAIR ORDERS TO US

In November, 1928, this Company purchased from the Receiver for the Monitor Furnace Company all of the original master and working patterns for *Caloric*, *Monitor*, *Kleenaire*, *Big Boy*, and *Merrimac* furnaces, and this is the only company authorized by the courts to continue the manufacture and sale of these products.

Repair parts made from the original patterns is the only way you can be assured of a perfect fit.

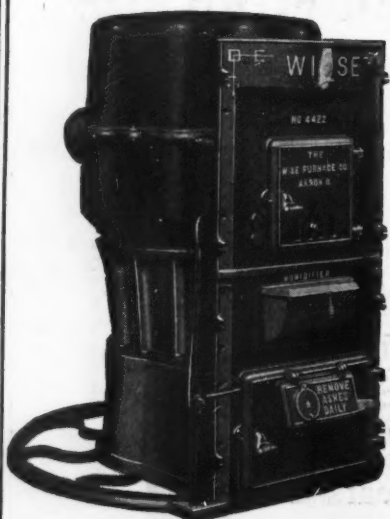
*Send all repair orders to Marshall*

**MONITOR-CALORIC DIVISION**  
**MARSHALL FURNACE CO. MARSHALL, MICHIGAN**

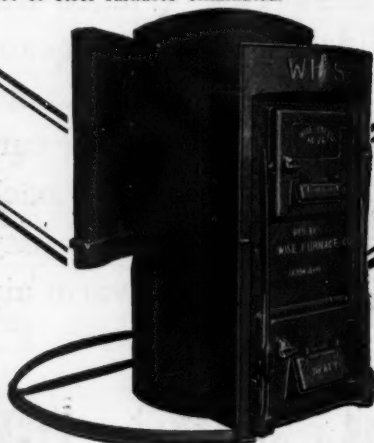
all your purchases from one source

## WISE FURNACES

BELOW is shown the New Wise Steel Furnace. A Wise product and a steel furnace having exclusive Wise features. Notice the Cast Iron Soot Box and Clean-Out on bottom of Radiator—the weak spot of steel furnaces eliminated.



THE Wise Open Dome 40 Series with Self Cleaning Radiator is even better than ever with its new One-Piece heavy Cellular Firepot and new Elbow Shaped Collar on inside of radiator which is turned up so that all the heat must follow the castings to the top before entering the flue.



THE Wise 20 Series Return Flue Radiator has a new Patented radiator. Now cleaning the radiator is easy. The feed chamber and the radiator are designed so that the fire flues are easily gotten at from the upper feed door with the soot falling directly into the firepot. Also equipped with the new Cellular Firepot.

Write for catalog No. 23

The WISE FURNACE COMPANY, Akron, Ohio



R. W. MENK, Pres.

Keep Up Ahead with Rudy



## WE ARE READY

WARM AIR HEATERS AND BOILERS  
BUILT OF WELDED STEEL

Units Designed to Burn Coal-Oil-Gas  
New and Outstanding in Character

HEATING SYSTEMS CORP.  
is now ready to help you do a  
real job of merchandising.

There is one sure way—  
One profitable way—  
One that has cost much to find.



If you want to become a Heating Specialist—  
If you want to get three jobs to one as now—  
If you are ready to consider a change from the old to the new—  
Then—you will want to line up with the HEAT-O LINE—  
The latest—The finest—Most profitable plan yet inaugurated.

Write or Wire

HEATING SYSTEMS CORP., 301 Scott Street  
Joliet, Illinois

## JUST TWO TOOLS



WILL INSTALL  
A MONCRIEF  
QUICK  
EASILY

You Can  
Hop To It

THESE are days when you must make every lick count. No time is lost when you are erecting Moncrief Furnaces, all assembled at the factory before shipping, with the edges of sections ground so as to go together easily. That is only one advantage. There are many others. Write for particulars.

### The Henry Furnace & Foundry Co.

3471 E. 49th St.  
CLEVELAND, OHIO



#### Distributors:

Carr Supply Co., 412 No. Dearborn St., Chicago, Ill.  
August Bery & Son, Mack Ave. at Drexel, Detroit  
The Henry Furnace & Foundry Co., Pittsburgh, Pa.  
Frontier Water & Steam Supply Co., 366 Oak St.  
—481 Elliott St., Buffalo, New York  
Johnson Furnace Co., Kansas City, Mo.  
E. A. Higgins Co., 1112 Douglas St., Omaha, Neb.  
Moncrief Furnace & Mfg. Co., Dallas, Texas  
E. W. Burbank Seed Co., 29 Free St., Portland, Me.  
J. F. Conant, Ry. Term. Warehouse, Troy, N. Y.  
Wilkes-Barre Hdwe. & Steve Co., 18-20 So. Washington St., Wilkes-Barre, Pa.  
The Crawford Heating Co., Steubenville, Ohio.  
Stockhoff Supply Co., St. Louis, Mo.

EASTERN OFFICE  
Room 1306, 11 W. 42nd St., New York City  
E. L. Garner, Manager

# MONCRIEF FURNACES

We supply everything used  
on a warm air heating job.

# THIS

Is the Line of Furnaces that Has Been Time Tested for More Than 30 Years in Thousands of Homes



# "AFco"

## Boiler Plate Furnaces

This is the line of furnaces that hundreds of "AFco" dealers have used as the corner stone upon which to build a successful furnace business.

This is the line of furnaces you too will want to sell when you know all the facts. These easy-to-read facts will be sent without obligation upon request. Do it NOW!

## American Furnace Co.

2719-31 Morgan St.  
St. Louis, Missouri

# FIGURE IT OUT FOR YOURSELF

then tell us •• **Do you want to get in on the "Sheer Comfort"**

*- "Split a Million" -*  
**Campaign**

**W**E'RE out to "Split a Million" among live dealers. We say that from the experience of hundreds of dealers who, in less than 10 months time, have handled *more than three quarters of a million dollars worth of "Sheer Comfort" Heat Regulators* before a line of consumer advertising had appeared. They've sold them faster than they or we ever dreamed possible. That proves that the *need and want* exists.

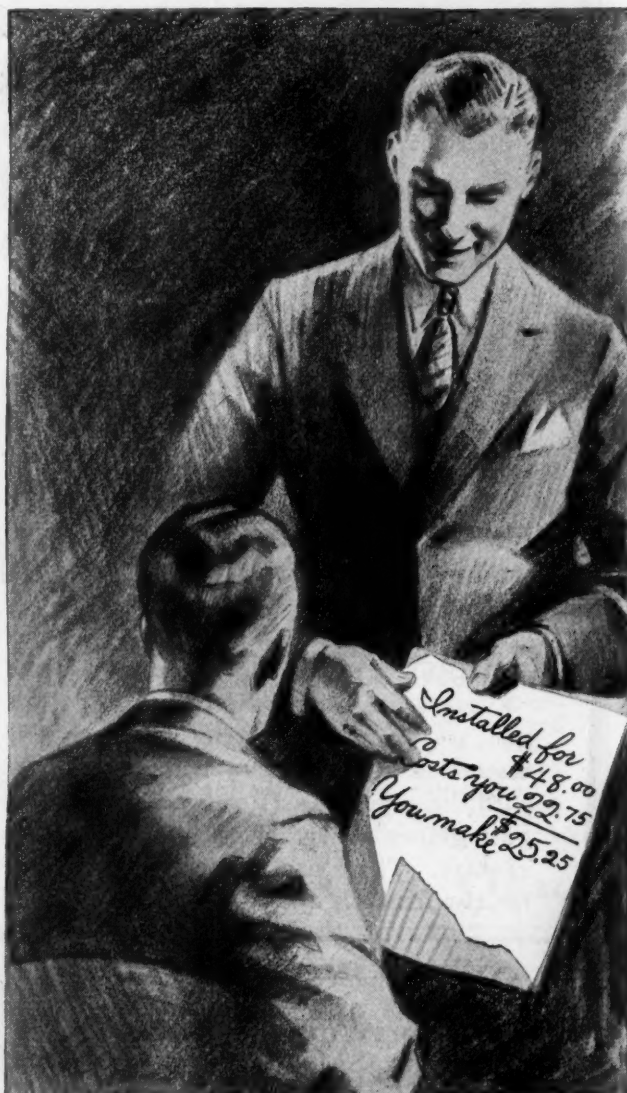
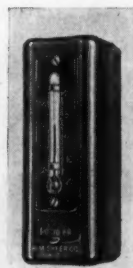
9 out of 10 homes *need and want* "Sheer Comfort." And here's why—

millions of homes burn coal or coke. "Sheer Comfort" Heat Regulator gives home owners with coal, coke or gas-burning, warm-air, hot-water or steam-heating plants, *the same automatic temperature control over their furnaces that homes using oil burners now have.* It will save from 20 to 25 per cent of the yearly fuel bill.



Frequently it saves its entire cost the first year. It's cheaper to have than not to have, for "Sheer Comfort" saves health and it saves money. And it costs only \$48.

Thousands of heat regulators selling for \$100 and more, have been sold and installed—yet *most heat regulators are too expensive for the great mass market*—and that's where your profits come from.



Starting with the September 28th issue of the Saturday Evening Post, we're telling millions of home owners—"Now you can get a heat regulator for only \$48."

This **National sales creating advertising campaign** will reach more than 6,750,000 homes reading the Saturday Evening Post, the Literary

# SHEER COM

Digest and the American Magazine. We know that \$48 "clicks" with the great mass market—especially when "Sheer Comfort" saves more than it costs.



That's one step in our "Split a Million" campaign. Then there are—**Helps to help you sell**—a sales creating window and store display that will tie all of this "Sheer Comfort" National Advertising to *your own* store. Using this display makes this National Advertising *your advertising*. It's a silent salesman for you. And there's sales making literature that you can send to your customers and prospects paving the



way for personal calls or inviting them to your store to see what this device will do for them.

Another step is the **"Sheer Comfort" 3 Minute Demonstration** — Demonstrations make sure fire sales and this demonstrating kit lets you show your prospects *in your store or in their home* just how "Sheer Comfort" regulates their furnace. You can show them the four exclusive "Sheer Comfort" features and how simple it is to install. Its action appeals and makes sure fire sales. More than 700 of these kits are in use with salesmen making house to house calls — and are they selling? But don't overlook the most important thing

in this proposition — there's **Adequate Profit**—and **people buy "Sheer Comfort"**. Take your own pencil and figure whether you want to get in on this "Split a Million" Campaign.

"Sheer Comfort" sells for \$48 installed. It costs you \$22.75 f. o. b. factory. Your gross is \$25.25. Can you use this profit? That's only one picture of profit possibilities. The other is—can they be sold in sufficient quantities to make an interesting volume of profit? Here's an answer to that. Here's a dealer in a town of 26,000 population sold 30 in 6 months. That's a gross profit of more than \$757.50 — does that look good? Here's one in a town of 8,500 population sold 15 in 4 months.



A gross of \$378.75. Here's another in a town of 26,000 sold 47 in 5 months. A gross of \$1186.75, not bad.

You can get your share of this "Split a Million" campaign if you get going now. You can get "Sheer Comfort" Heat Regulators from your regular jobber or direct from the factory. They are simple to install—you don't have to shut down the furnace to install it—and now is the time to cash in, just when people are conscious of the need.

**Don't wait—act now—for "Sheer Comfort" is going to "Split a Million" among live dealers—get the full details of our special proposition—write — wire — or use the coupon now—get your share of the "Sheer Comfort"**

**"Split a Million" Campaign**

# FOR T

## heat Regulator

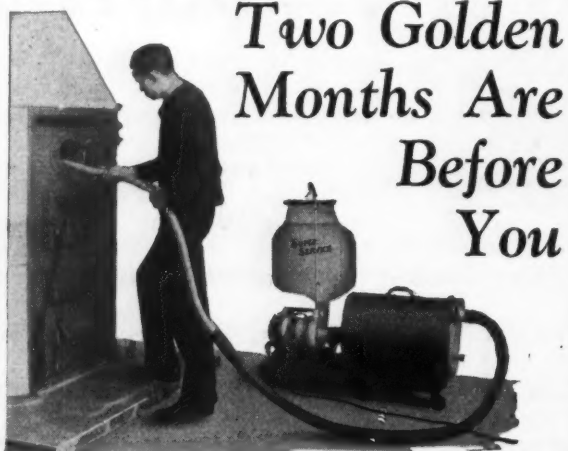
H. M. Sheer Co., 213 Hampshire St., Quincy, Ill.  
How do I get my share of your "Split a Million" Campaign. What's your special proposition?

Store Name.....

Address.....

City.....

My jobber is.....



4 to 6 jobs a day—one man—powerful—light.

**Furnace Cleaners will have no idle moments for the next two months. Will you share their harvest?**

Home owners all demanding hurry-up service; October's Fire Prevention Week has been an alarm clock for the slow boys. Dirty furnaces and soot-choked flues are real fire hazards and the red peril must not menace their homes and loved ones.

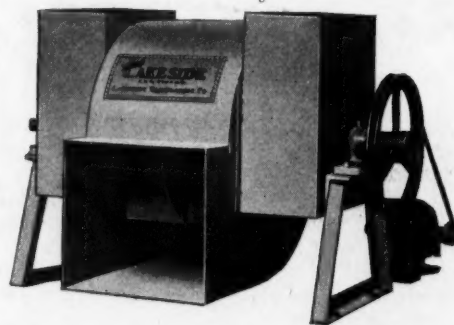
One man, with a light, compact *Super Service Cleaner*, can easily handle four to six jobs a day; more at a pinch. Each bringing in \$7 to \$10 gross.

Belated repairs will boost the total amazingly; new furnaces are imperative in many cases and you get first-hand information.

Our free *Plan Book* is full of helpful tips on soliciting this business—and on how to check up solicitors.

*Write us today about the Super Service. Its price is reasonable—and on easy terms, if you want them.*

**The NATIONAL SUPER SERVICE CO.**  
816 Lafayette St. Toledo, Ohio



## Helps Increase Your Sales

Every warm air furnace owner in your territory is a prospect for Furblo—the quiet, efficient furnace blower. Operation cost low—and it can be installed on old or new furnaces. Quiet in operation, Furblo does not interfere with free gravity circulation of air when not operating.

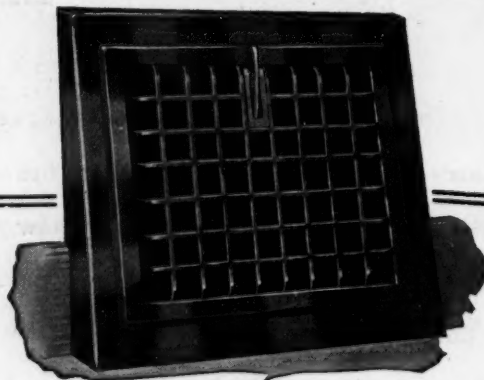
Let us tell you more about this opportunity for increased sales. Write for details, prices and discounts.

**LAKE SIDE COMPANY, Hermanaville, Michigan**

*Furnace Blowers in all sizes—for large or small jobs*

# Furblo

*The Quiet Efficient*  *Furnace Blower*



## The AUERISTOCRAT

of all registers, combining air capacity, decorative and concealing features.

Designed to conform with the Standard Code so they fit all standard boxes.

Auer Patented mechanical features make it perfect in operation,—quick and easy to install.

*Auer's Save Hours and Dollars*

**The AUER REGISTER CO.**  
Cleveland, Ohio

# Sponsored by THESE AGGRESSIVE DISTRIBUTORS



**Specialty Metal Plate**  
INDIANAPOLIS



**FOLLANSBEE BROTHERS COMPANY**  
Follansbee Forge  
STEEL SHEETS - TIN PLATE - TERNE PLATE  
PITTSBURGH, PA. Sept. 19, 1909.



**THE RYBOLT HEATING COMPANY**  
INDIANAPOLIS, IND.

**The Equipment Supply Company**  
DISTRIBUTORS AND MANUFACTURERS  
Metalworkers' Supplies  
17-23 North Dearborn Street  
CHICAGO, ILLINOIS  
U. S. A.



**KEITH FURNACE COMPANY**  
DES MOINES, IOWA

**Milwaukee Stove & Furnace Repair Co.**  
REPAIRS FOR STOVES, FURNACES AND BOILERS  
24 THIRD STREET  
MILWAUKEE, WIS.

**DEMMLER BROS. COMPANY**  
PITTSBURGH, PA.



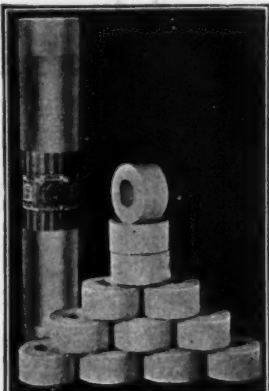
## Patent Applied for. Sal-mo Ready Cut Asbestos Elbow Segments

Tailor-made to fit each standard size elbow or angle. (8", 9", 10", 12"). Made for 3 and 4 piece 90° elbows and 2 piece 45° angles. Packed in cartons containing 25 or 100 sets of a size. More economical than cutting your own.

**WARM-AID HEATING PLANTS**  
WARM AIR HEATING CO.

**Benefit Steel Furnace Company**  
Cincinnati, Ohio

**DETROIT SAFETY FURNACE PIPE CO.**  
DETROIT, MICH.




## Sal-mo Pipe Joint Tape

Put up in handy packages containing 12 rolls. 1000 lineal feet to a package. No waste nor loss of time. Clean and neat. One roll just fits the hand.

**THE MACINTYRE-MCDONALD CO.**  
PITTSBURGH, PA.

**LIBERTY STOVE REPAIR CO.**  
LINCOLN, NEBR.



**CARR SUPPLY COMPANY**  
CHICAGO, ILLINOIS

**Gumney McFarland & Co.**  
PHILADELPHIA

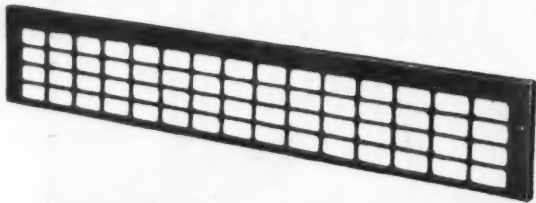
## Manufactured by SALL MOUNTAIN COMPANY

ALSO MANUFACTURERS OF  
ASBESTOS { PAPER  
MILLBOARD  
PIPE COVERINGS  
CEMENTS, ETC.

176 W. Adams Street  
CHICAGO  
ILL.

SALL MOUNTAIN CO.,  
176 W. Adams St., Chicago, Ill.  
Gentlemen: Send me Free Samples of Pipe  
Joint Tape and Asbestos Elbow Segments.  
Name .....  
Address .....

Say you saw it in AMERICAN ARTISAN—Thank you!



The New N 92 Baseboard Vent

**TUTTLE & BAILEY**  
**SUPER-REGS**

Reg. U. S. Pat. Office

COMPRISE  
EVERY TYPE REGISTER  
AND FACE FOR  
WARM AIR HEATING

Stocks carried in all principal cities

**TUTTLE & BAILEY MFG CO.**

Established 1816

441 Lexington Avenue

New York

**"GEM"**  
Adjustable

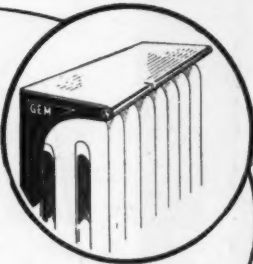
**RADIATOR SHIELDS**

Think of the convenience of any customer with any size radiators being able to select **right out of your stock** the right size and color of "GEM" Adjustable Radiator Shields to suit his requirements. The "GEM" Adjustable feature and assortment of five handsome colors make this possible.

Gold-Bronze, Walnut and Mahogany Wood Grain finishes for dark interiors. 10 popular sizes adjustable to radiator top widths, 6" to 13"; lengths, 11" to 65". Retail at \$5.00 to \$8.00. Beh & Co., 1140 Broadway, New York, N. Y.



Buy from your jobber



**INDEPENDENT  
REGISTERS**

**VENTILATORS - GRILLES**

**"Fabrikated" Cold Air Faces**

**ANY SIZE - ANY FINISH**

*Ask for a copy of our New Catalogue*

**Independent Register & Mfg. Co.**

3747 E. 93rd St.

CLEVELAND, O.

THE **"Alamo"**  
LINE

They fit all furnaces

Chas. Smith  
**HOT WATER HEATERS**

THIS well known heater is more popular today than ever before. Made in 4 sizes. Small sizes for heating domestic water, large sizes for heating distant rooms with Hot Water Radiators.

Size 3 is 12 in. high, 12 inches wide with capacity for 150 ft. radiation. Write for prices and circular today. We make a complete line of Water Heaters for making combined Warm Air and Hot Water installations.



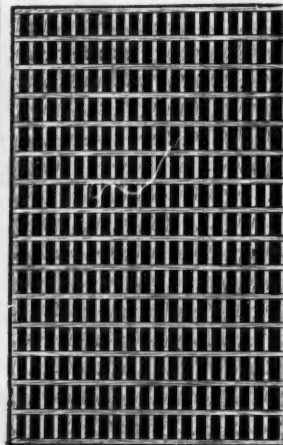
**SMITH'S  
LITTLE  
GIANT**

Write  
for  
catalog  
today

**ALAMO HEATER CO.**

6143 Wentworth Ave.

Chicago, Ill.



**AMERICAN  
WOOD  
REGISTERS**

WHEN you order wood registers be sure of getting the best by buying these famous wood faces—

Known as the finest  
for over 21 years

They add extra value without extra cost. We make nothing but Wood Registers and only the best.

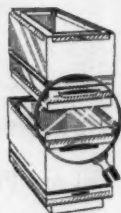
Write today for catalog  
and latest price list.

**The AMERICAN WOOD  
REGISTER CO.**

Plymouth, Indiana

Established 1902

**CHICAGO  
FURNACE PIPE  
AND FITTINGS**



**Our New Self-Locking Double Stack**

THIS new design is the result of over 25 years' experience in making good Furnace Pipe. When the new Chicago stack is put together it is put to stay and it is extremely easy to erect.

The more you know about good furnace pipe the more you will appreciate Chicago Pipe. Ask about this improved pipe today.

Write today for our Catalog No. 21, illustrating and describing Furnace Pipe and All Furnace Supplies.

**CHICAGO FURNACE SUPPLY CO.**

1276-78-80-82 Clybourn Ave.

CHICAGO

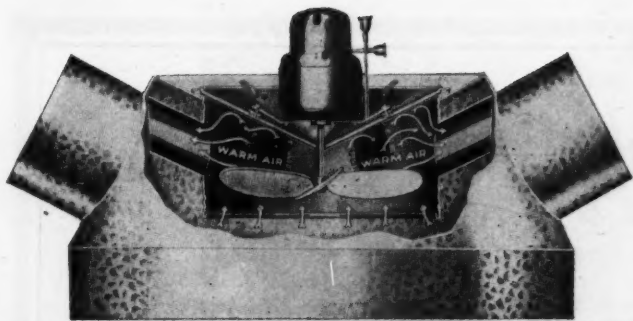
**PATTERNS FOR STOVES  
AND HEATERS**

**THE CLEVELAND CASTINGS PATTERN COMPANY**  
CLEVELAND, OHIO

**IRON AND WOOD  
STOVE PATTERNS**  
**QUINCY PATTERN COMPANY**  
QUINCY, ILLINOIS

**PATTERNS**

**FOR STOVES AND HEATERS** FIRST-CLASS  
IN WOOD and IRON  
**VEDDER PATTERN WORKS** ESTABLISHED 1835 **TROY, N. Y.**



WRITE TODAY TO  
THE JOBBER NEAR-  
EST YOU FOR FULL  
DETAILS AND PRICES

**T**RY enlightening your trade  
on the subject of better warm  
air heating.

Most home owners haven't even heard of such a thing as a furnace fan and you're all set for the biggest surprise in your life when you see how much greater interest folks take in warm air heating when you bring the FAN idea to their attention.

The Robinson Heat Distributor will appeal to them because it is logical, efficient and installed without great expense.

Install a Robinson on a bonnet and put this attention getting display in your window NOW. More and more dealers are learning that selling the Robinson is the way to give their trade better warm air heating — WITH MORE PROFIT TO THEIR BUSINESS.

BAKER-PAYNE-VOYE CO., Boston, Mass.  
THE BECKWITH CO., Dowagiac, Mich.  
BERGSTROM MFG. CO., Neenah, Wisconsin  
CARR SUPPLY CO., Chicago, Ill.  
DAYTON-HESSLER CO., Syracuse, N. Y.  
DEMMLER BROS. CO., Pittsburgh, Pa.  
DOWAGIAC STEEL FURNACE CO.,  
Dowagiac, Mich.  
FARRIS FURNACE CO., Springfield, Ill.  
C. L. FEATHERSTONE FURNACE  
CO., Spokane, Wash.  
FOLLANSBEE BROTHERS CO., Pittsburgh,  
Rochester, Cincinnati, Memphis, Detroit,  
Indianapolis, Milwaukee, Louisville.  
FLORAL CITY HEATER CO., Monroe, Mich.  
FOX FURNACE CO., Elyria, Ohio  
HEATING & SUPPLY CO., Pittsburgh, Pa.  
HENRY FURNACE & FOUNDRY CO., Cleve-  
land, O.; Indianapolis, Ind.; Pittsburgh, Pa.  
M. K. HOKE ESTATE, Manheim, Pa.  
HOMER FURNACE CO., Coldwater, Mich.  
IDEAL FURNACE CO., Detroit, Mich.  
INTERNATIONAL HEATER CO., Utica,  
Chicago, Cleveland, Nashua, New Hamp-  
shire, Longbranch, N. J.  
KALAMAZOO STOVE CO., Kalamazoo, Mich.  
KELLEY-HOW-THOMSON CO.,  
Duluth, Minn.  
KELSEY HEATING CO., Syracuse, N. Y.  
W. E. LAMNECK CO., Columbus, Ohio  
LENNOX FURNACE CO., Inc., Syracuse, N.Y.  
LENNOX FURNACE CO. OF CANADA,  
Ltd., Toronto, Ontario & Winnipeg, Man.  
THE MAJESTIC CO., Huntington, Ind.  
MAY-FIEBEGGER CO., Newark, O.; Akron, O.  
MIDLAND FURNACE CO., Columbus, Ohio  
MONCRIEF FURNACE CO., Atlanta, Ga.  
NEW IDEA FURNACES, LTD.,  
Ingersoll, Ont., Can.  
THE OHIO SHEET METAL & MFG.  
CO., Dayton, Ohio  
J. M. & L. A. OSBORN CO.,  
Cleveland, O.; Buffalo, N. Y.  
PEASE FOUNDRY CO., Ltd.,  
Toronto, Ontario, Canada  
PENINSULAR STOVE CO., Detroit, Mich.  
PORTLAND STOVE FOUNDRY CO.,  
Portland, Maine  
RICHARDSON & BOYNTON CO., New  
York, Chicago, Boston, Philadelphia,  
Buffalo, Minneapolis, Newark, N. J.  
THE SCHILL BROS. CO., Crestline, O.  
SUCCESS HEATER MFG. CO.,  
Des Moines, Iowa  
WESTERN STEEL PRODUCTS CO.,  
Duluth, Minn.  
GEO. F. WHEELLOCK CO., Birm'gh'm, Ala.  
WISE FURNACE CO., Akron, Ohio

Mfg. by The A. H. ROBINSON CO., Massillon, Ohio

# ROBINSON

## Heat Distributor

Mention AMERICAN ARTISAN in your reply—Thank you!

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Founded 1880

# American Artisan

The Warm Air Heating and Sheet Metal Journal

Yearly Subscription Price:

United States .....\$2.00  
Canada .....\$3.00  
Foreign .....\$4.00

Published EVERY SATURDAY—to Promote Better Warm Air Heating and Sheet Metal Work

## PORTER - SPOFFORD - LANGTRY CORPORATION

139 North Clark Street, Chicago—Telephone Central 7670

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Advertising Representatives:

Charles E. Kennedy — J. F. Johnson

New York Office: 1403 Pershing Square Bldg., 100 E. 42nd St. Tel. Ashland 5342

F. R. Whitten, *Eastern Representative*

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\$2.00 Per Year

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**RICHARDSON**  
*"Perfect," Positive Warm  
 Air Heaters*

**ZERO**  
*and this  
 Thermometer  
 Goes up!*

**R**EAL cold weather often means a hurry call for the repair man. This may be good business for him but it is better business to be known for installations that stand up and maintain efficiency under all conditions.

The lower the outside thermometer, the higher the sales thermometer of dealers handling the Richardson Line.

Guaranteed ratings, a quick response to increased drafts and extra large radiating surfaces enable the Richardson Perfect Positive Warm Air Heater to give unusually satisfactory service at low temperatures. This is the de luxe unit of the Richardson line and a product of added quality and up-to-the-minute-refinements, which often establishes strong elements of good will that one heater literally sells another.

We believe in and  
 are members of  
 The National Warm Air  
 Heating Association

## RICHARDSON & BOYNTON CO.

*Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837*

260 Fifth Ave., New York

Utica, N. Y.

New York   Utica   Newark   Philadelphia   Boston   Chicago   Buffalo   Minneapolis   Cincinnati   Detroit   Providence

Mention AMERICAN ARTISAN in your reply—Thank you!

# MERCOID M-51

## THE OUTSTANDING WARM AIR FURNACE CONTROL

The Mercoïd M-51 Warm Air Furnace Control has decided advantages over similar devices on the market and at the same time a low selling price is maintained.

The following are some of the desirable features:

It has a double adjustment which permits its use over the wide range of operating conditions encountered in the field.

The adjustment is a simple mechanism which is easily set to any required range.

Another unique feature is the indicator which shows the temperature in the duct or hood of the furnace. Its usefulness in this respect is comparable to that of a thermometer on a hot water boiler or the pressure gauge on a steam plant.

The flange furnished is adjustable and enables the installer to place the instrument in almost any required position on the furnace.

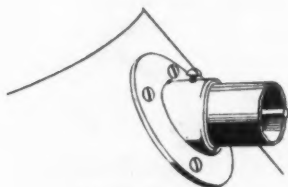


Illustration 2

Illustration 2 shows the simple construction of the flange. When mounted on a 45 degree angle, the instrument assumes the po-

### LOOK



*Note the simple High and Low Double Adjustment Mechanism. Also the Furnace Duct Temperature Indicator.*

sition as shown in "P", illustration 3. If the angle is less than 45 degrees the instrument may

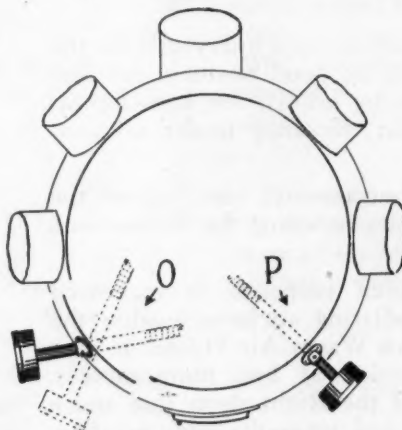


Illustration 3

be either set forward or backward as in "O".

The flange is made of steel and may be readily shaped to fit various contours.

The Mercoïd switch in this instrument is of the latest tipless type which insures better and more dependable performance.

The adjustments are all located within the case of the instrument to prevent accidental disarrangement or tampering.

Order a sample control and be convinced of its possibilities. *Bulletin S-83A gives complete information. Write for it.*

# THE MERCOID CORPORATION

564 W. ADAMS STREET  
CHICAGO, ILLINOIS



NEW YORK  
25 CHURCH ST.



SAN FRANCISCO  
1129 FOLSOM ST.



When writing mention *AMERICAN ARTISAN*—Thank you!



# American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 98

CHICAGO, OCTOBER 12, 1929

No. 15

## Is Your Shop Superfluous?

**H**AVE you ever heard the statement: "There are too many sheet metal and warm air heating establishments in our town." Do you think there would be too many if the proprietors of them had not been dominated by inclination rather than fact when they started them?

I am sure that if every man contemplating entry into the sheet metal or warm air heating business on his own would first stop to consider whether there is a definite need for additional service of the kind he is able to render before actually opening a shop, the mortality of this type of shop would be greatly lessened.

**T**HE only proper justification for a man setting up in a business of his own is the fact that there is a definite need for the service which he can render to the community in which he proposes to operate. However, do not mistake numbers for adequate service. Because a city has ten sheet metal shops, all of which are experiencing difficulty in making ends meet, this fact should not act as a deterrent to a man who is desirous of opening the eleventh shop. Because there are ten shops already in existence need not necessarily prove that there is no need of an additional shop that can give adequate service.

**T**HESE thoughts were called to mind by a little experience that occurred to me recently upon visiting a sheet metal shop in a city which already had seven such shops. I entered one on the main street and,

*THE proper criterion for the sheet metal mechanic who is thinking of entering business on his own is first of all to see whether there is a need for service of the kind he can render and how nearly that need is being satisfied by the contractors in the field.*

*The fact that there are already numerous contractors in the business in any given community does not necessarily prove that they are giving adequate service and there still may be room for the young contractor.*

*The possibilities for expansion in the city and how well contractors present are serving the community are the first things the young man should look to before embarking in business for himself. There are others, of course.*

after introducing myself to the proprietor, I asked a stock question about business conditions in the town.

**I**T seems, from what the proprietor told me, things weren't going so good. One of the largest factories in town had pulled up stakes and moved elsewhere, which in turn meant that a great many families would have to do likewise, in order to keep the wolf from the door. Then to my surprise the proprietor blurted out something on a subject that it was evident had rankled in his breast. He said: "Yes, things is pretty bad here in the sheet metal and warm air heating racket, and I don't see how that young punk Williamson thinks that he can make a go of a sheet metal business in this town. There ain't 'nough business for those that are already here, and now he comes along an' thinks he's going to set the world on fire." Oh, Oh! Here was something. After talking a few moments, I left.

I visited two or three other shops

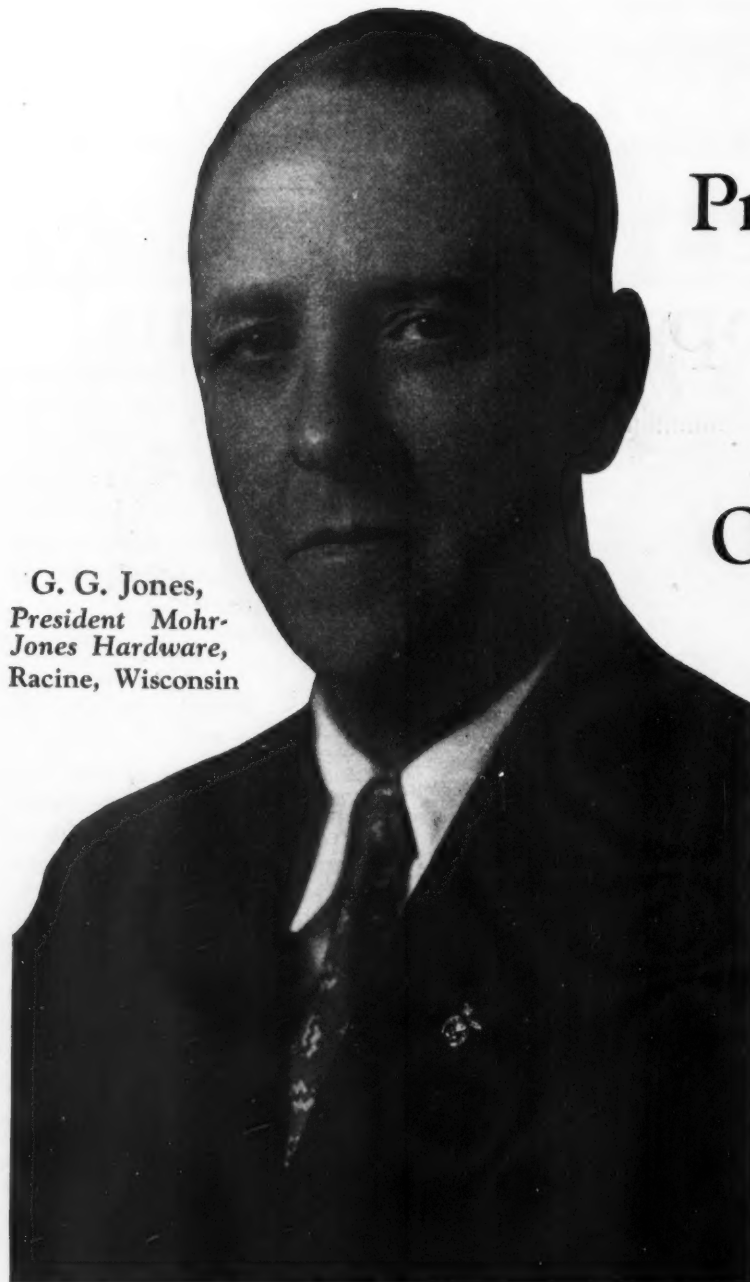
shops that were "already established" and a little adroit questioning brought responses similar to the one I had heard in the first place. All the men seemed to scoff at the idea of Williamson trying to make a success of a sheet metal business in a town that did not afford enough business for those who were already there.

**I** LEARNED the young man's name and where he was holding forth from a local bank and determined that I would drop around and find out what kind of a person it was who had the audacity to invade such sacred territory. I found him just returning from lunch. He was a straight-forward looking chap about 28 years of age, with an expression of intelligent determination on his face that instilled confidence and led one to believe that he knew what he was about.

Such was the individual who was slated for utter failure. He didn't look much like the kind of stuff that failures are made of to me. After introducing myself to him, I informed him of the fact that his career as a sheet metal contractor, according to his competitors was slated for a short life. And his reply was: "Oh, yes, I know. You see I've worked in the shops of every one of those fellows. I tried to buy my way into a part ownership with each and every one of them.

"I'd given the matter pretty thorough consideration before going into it on my own, and no matter from what angle I viewed

(Continued on Page 69)



G. G. Jones,  
President Mohr-  
Jones Hardware,  
Racine, Wisconsin

# Disarming Price Competition How One Firm Sold 200 Furnace Repair Jobs

As Told to  
George Duerr

**"W**HY are we successful in doing a volume of business running well over the \$300,000 mark each year in sheet metal and warm air heating?" It was E. R. Smale, sheet metal department manager of Mohr-Jones Hardware Company, 315 Sixth Street, Racine, Wisconsin, who spoke and he was repeating a question that I had just put to him in an effort to learn why this firm is so eminently successful in two lines of endeavor that are supposedly on the down grade.

"The success that the Mohr-Jones Company has had in the sheet metal and warm air heating lines is well deserved," said Mr. Smale, "for the simple reason that the company has

so conducted its affairs in dealing with the home owners and builders of Racine that it has convinced them of its sincere desire to be of service in the lines in which it is engaged."

Just then the telephone rang and he was interrupted for a moment.

Resuming his conversation again, Mr. Smale went on: "We have not found it necessary to advertise our business to any great extent; that is, in the ordinary way. Our name and reputation are so well known and established in the city in connection with quality service that a great portion of our business comes to us through the satisfied customer route.

"There is a reason for that and a very good one, although it is sim-

ple enough. It is one that entirely too many contractors lose sight of in their zeal to get the order. And it is just this: We have our business so organized that it is thoroughly departmentalized. We have a foreman over the sheet metal shop. We have another supervising the erection of work on the outside. These department heads are held responsible for the work. In our warm air heating department we have our machines and stock so placed that the minimum of time and effort is required in working it into shape and the finished product. We also have weekly meetings of department heads and foremen. This makes for friendliness and cooperation among departments.

"In this way the work goes out of the shop under the direction of a competent foreman who knows his business and who sees to it that there are no hitches or snags met with during the erection. The same is true in the shop. This eliminates



delays and keeps the labor item on each job at the absolute minimum. It does even more than that. It insures that the work is done right in the first place and the possibility of the necessity for going back to a job is greatly reduced.

"In a word, we know our organization and what it can do. We know our costs and we know that with our organization we can get quality work done at the minimum cost to the customer. That service is appreciated and brings its reward in the form of other new business in return.

"Another thing which helps us to give a favorable impression to our customers is the fact that we have a complete stock on hand at all times. We often have as much as two and three carloads of sheets on hand here at one time and the same is true of furnaces. In fact, so well is it known that our stock is always complete that many of our competitors come to us for supplies in an emergency. We are glad to have them do this."

To substantiate this statement, Mr. Smale took me through the entire work shop. In the sheet metal shop I saw every kind of a machine that could be needed by the sheet metal worker. The arrangement of these machines, too, was perfect.

From the machine shop we went to the basement and warehouse where were stored sheets of all sizes and materials. In the basement the

"This will confirm our verbal agreement on the work that is to be undertaken. Kindly read it carefully and affix your O. K. before returning it to us."

But I had heard a great deal about the price cutter and his antics and how he is ruining the business. Therefore, I was quite eager to find out what antidote this progressive company had for the evil of price cutting, because I felt sure that they must run up against it somewhere some time. So my next question to Mr. Smale concerned price cutting.

"What I said about supervision and organization," answered Mr. Smale, "gives the reason for our immunity

from the necessity of price cutting. We have built our business on the basis of quality service and materials. We never take work below a figure that will permit us to make a fair profit on it. This is not saying that we do not take work at a

### Why We Are Successful

**WE** employ methods that build customer confidence as follows:

**We have departmentalized our business completely**

**We supervise all of our work during its progress**

**We make it our business to read specifications correctly**

**We know our costs**

**We maintain a complete stock of everything on hand**

**We make no verbal, unconfirmed quotations**

**We secure a fair profit on every job taken**

**We use the telephone consistently and effectively**

**Added to all this we have a sincere desire to serve in our chosen lines and the methods we employ make the customer feel this.**

furnaces were stored. Here Mr. Smale stated was the only handicap under which they labored. The furnaces had to be carted a considerable distance to the warehouse after being unloaded. This difficulty will be overcome soon.

figure that is lower than other bidders, but due to our superior organization and equipment there is bound to be some difference in the price.

"Every so often, however, we run into the price cutter that will not be outdone and when we do that we give him the 'works.' We had an experience of that not so long ago. We were bidding on machine guards and we quoted a price that would permit us to make a profit and give quality service. Some contractor undercut our price and gave a figure which we knew would not even let him break even. So we decided that we would teach him a lesson. We then cut our price so that it would just barely cover our costs, and our competitor

swallowed the bait, line and sinker. He took the job at a figure that cleaned him out completely.

"We don't like to do such things, but once in a while we do do it just to show the customer that he is getting just what he pays for, regardless of how low the price is. It gives us a strong hold and breaks down selling resistance on quality products and workmanship.

"One of the biggest causes of price cutting, we find, is that the contractor does not know what his costs are. We are very particular on this point. We do know our costs. We keep on file complete information of all the work that goes through our shop. We make frequent reference to this information."

"A third source of potential trouble to many contractors is that they do not read the specifications right. They are not absolutely sure when they take a job that they have thoroughly understood just what is expected of them. Consequently when they come to complete the job they find that their contract

calls for more than they allowed for in their price and their profit is shot, due to no one's fault but their own.

"We are very careful on this point. We often go to the architect or owner for a clarification of specifications before entering into the contract. We find that by doing this we minimize the chance for a misunderstanding between ourselves and the contractor.

"Then, too, we make absolutely no verbal quotations to customers. Everything is done in writing. Any order that is taken over the telephone is confirmed by letter the customer's O.K. received on the confirmation before we start to do the actual work. We are very punctilious on this score because we know that disagreements are sure to arise where any other plan is employed. It is very simple to understand why this is so. In giving a verbal quotation we may not have a full understanding of what the customer has in mind. He may be thinking of something entirely different from that which we are thinking at the time the proposition is being discussed. Now if we were to go ahead on that basis, the customer would not get the service he expected at the price presumably agreed upon and consequently he would say that we are trying to put one over on him.

"On the other hand, if we take his verbal order and then confirm it before the work is started, getting his indication in the meantime that we fully understand one another, we go



"See here, we overlooked forty feet of gutter, 3 complete downspouts, on the specification."

ahead on the basis of a perfect understanding. When the work is completed, he pays the bill and we get the credit for having given him a square deal, which we have. Many contractors think that is not important, but they will find if they will follow that plan, they will have less cause for worry when it comes time to collect for their work."

I asked Mr. Smale if his company had any plan worked out whereby they endeavored to induce people to have their furnaces looked after during the summer months, when things are naturally somewhat slack.

His answer was that they had. He said that they had put a great deal of time and thought on that subject and had tried several methods with but indifferent results. The mailing of a card had not been satisfactory.

"This summer, however," said Mr. Smale, "we put a plan into operation that gave us the best results we have ever had, and was the means of our securing some 200 furnace repair jobs. We dug into our files of names of former customers for heating plants and checked these off with the same name in the tele-

phone directory. Having completed this list, we hired a university girl for a month or so and thoroughly instructed her in the terms used in warm air heating and what questions to ask. This done, we set her loose on the telephone. She kept steadily at it all day long, and as I said at the outset, here efforts made it necessary for us to put on two extra men at a time when ordinarily we are slack.

"The burden of the young lady's conversation over the telephone was to inform the customer," said Mr. Smale, "that a special price was being made for all orders received for

furnace repair work before August 1st, regardless of when the work was actually done.

"So satisfactory did this proposition work out for us that we are making plans to do it again next year on a more elaborate scale. As it was, we moved about 200 repair jobs into the summer months and took them away from the rush season. In all probability we would have had most of these jobs to do anyway, but they would have all come in a group at the last moment had we not made this special effort to get them out of the way.

"Of course anyone attempting to put a plan of this kind into operation," cautioned Mr. Smale, "must



"Good Morning, Mrs. Campbell! This is the Mohr-Jones Hardware Co. Calling."

be very careful about the qualifications of the girl they put on the telephone. The young girl at the telephone can create an unfavorable impression on the prospect, which, of course, is not the thing desired at all. The telephone operator must be instructed and thoroughly understand that she is the company impersonated and that whatever impression she makes on the prospect by her conversation will either make friends or enemies for the company.

"We had no difficulty of this kind, however, as we took particular pains with the girl at the outset, thoroughly instructing her in an ap-

proach that would not antagonize. She was very diplomatic by nature and after the first day or so got along in fine shape.

"That in brief tells you why we have attained the success we have in selling sheet metal and warm air heating to the extent of some \$300,000 a year," said Mr. Smale, "others can do the same thing if they will but half try.

"I find as a general thing that people are becoming more conscious of sheet metal and the service it can render for them than has been the case in any time past. I have no doubt that the advertising which such organizations as the Sheet Steel Trade Extension Committee, the Copper & Brass Research Association and the American Zinc Institute are doing is having its effect upon

the minds of the public. It is teaching the public the value in using these metals. Then, too, the work which such firms as ours is doing is proving to them that the metals have superior merit when properly applied."

**Hardware Special Will Leave Over B. & O. October 20**  
The National Hardware Convention Special from Chicago to

Atlantic City will leave from the B. & O. station, Chicago, Sunday, October 20, and is an all expense train.

There will be a banquet at 6 o'clock in the evening at which the manufacturers and the trade papers will be hosts to the jobbers. "Ned" Swift of Stanley Works and Bob Jones of Clyde Cutlery will be in charge.

E. D. Corcoran, passenger representative of the B. & O. line, is, as usual, arranging the trip. All reservations should be sent to him at Chicago.

# Doremer Gets His Money Without Offense

"**S**HOW me the sheet metal contractor or the warm air furnace installer who says he does not have difficulty in making collections and I'll show you a man who handles the truth very lightly." Thus spake John Doremer, a sheet metal contractor who not only sells a lot of sheet metal and warm air heating service, but who also gets paid for most of it.

"Getting paid for the work you do is simply a part of the entire business transaction. You've got to set machinery in motion to take care of this part of your business in the same manner as you do in order to get the work itself done."

One factor which contributes a great deal to the success of Mr. Doremer in making collections is that his account data is kept on hand at all times. In the first place he uses typewriter paper to make a complete list of accounts with two duplicate copies. The name of the customer, his address, a brief description of what the work done consisted of and the way the account stands. These sheets are bound into booklet forms. One booklet is kept in the office, another is carried in the car used by Mr. Doremer and his son, while the third is used by a stenographer in writing collection letters. Any payments of principal or interest made are promptly recorded in these books.

"The object," said Mr. Doremer, "in making such complete records is that it enables either me or my son to make collections anywhere we see a debtor, and there is never any argument over dates or amount of payment or other excuses made possible in the absence of complete records."

"Personal letters are the ones that

**R**EGARDLESS of how careful a man may be in extending credit to his customers, he is bound to find a few slow pays in the lot. Folks who have given him notes or other promises to pay at a certain time and then try to beg off when the time arrives.

*It is then up to the contractor to employ methods of getting the money without giving offense if possible. Last resort methods are apt to be pretty strenuous unless considerable thought is given them before they are put into execution.*

*In this article are illustrated some of the methods employed by A. J. Doremer, a midwest town sheet metal contractor, which have produced the cash without rubbing the fur too much the wrong way.*

cut our losses and get the money. I hire a girl from the bank to work from 4 to 10:30 p. m. or so about every ten days. During this time I can dictate about 75 or 100 letters, and in doing this I make each letter apply to the individual to whom it is sent. This entails considerable extra work; it avoids the formal type of collection letter:

"You understand," continued Mr. Doremer, "that these letters have nothing to do with the monthly statements that are sent out. They are letters written to produce action on the part of the accounts that have become 'slow pay.'"

"Instead of creating the impression that the collection letter is just a form letter sent to all customers, I make it ring true and apply to that particular person to let him know it is he whom I am expecting in to pay the bill. A letter, for in-

stance, may be started off something like this: 'Darn your hide, Joe, are you fixing to let me starve?' Such personal letters will bring in the average customer either to pay the entire bill or to make a partial payment on account and arrange for the remainder to be taken care of in a short time.

"Of course, some folks won't budge until you get hard with them. For these I also have a type of personal letter, but I have a little stunt that I use with considerable success on some of these more hardened critters. Here's how I couch letters of this type: 'I'm sorry, Jim, that I cannot renew your note for \$90. I wish you would look around in your neighborhood and see if you can't find some friend of yours to take this note off my hands if you can't settle it yourself.'

"They usually blow up when they get this letter. No one likes to have you suggest that he let his neighbors and freinds in on his business affairs, but when I tell him to look around for a buyer he thinks that I mean business.

"This type of letter brings in the hard ones, usually boiling over in rage. But it gets the money just the same. It brings in others who are not mad, but who will just say, 'I can't pay it; what are you going to do about it?'

"I used to get hard with the debtor too when I knew that he had spent his money for other things, but this is old stuff to him, as he hears this often from all the merchants he owes. I take him by surprise by letting him do all the arguing. I just agree, 'I don't see how you can pay either—but I can't carry you.' I throw it right back to him by asking, 'What are you going to do?'

"I let my customers do their own thinking and all the talking; they will usually figure out a way when forced to take the responsibility." Doremer gave an illustration of how the thing works. "A customer owed a note for \$100. As usual I answered his excuses with 'What are you going to do about it? I can't carry it. Most of my customers have paid up or paid half; I'll have to try and take care of them.'

"This customer was left to do his own thinking and not reprimanded for his poor business management, as is often done. After a few moments he said, 'Here's \$20 now. I feel sure that I can dig up the remainder in a few weeks.'

"Another stunt I use is that of embarrassing the debtor. I only use this on rare occasions, however. This is the practice of not calling a customer from a crowd to be dunned. I have to use a bit of diplomacy in this matter, for I wait until I catch the hard-pay customer in a crowd of friends; then it is, 'Bill, by-Joe, I've got to have that twenty bucks you owe me.'

"At other times I wait until I see a debtor with his wife. I stop their car in the middle of the street; then I ask my customer's wife if she is in a hurry. As the answer is generally in the negative, I add, 'Well, make old Charlie come in here and give me a check for that thirty dollars.' Of course, all such comments are made with a smile and good naturedly, but the average hard-pay customer does not like to be jumped in a crowd.

"I find that he will either pay or drop around within the next few days and settle up, all in a good humor and no ill feelings towards me or my collection policies.

"Although these described collections methods get the cash in most instances, my collection troubles are not entirely solved so easily. There

are still a few that have to be kidded into paying in a different manner. When personal soliciting and collection letters will not bring the cash in a reasonable length of time, I call on the customer to inform him that he is about to be sued. There is no argument nor hard words. I inform my customer that suit is to be entered, and I end with some such comment, 'Come on, get in the car and let's go over and fix up the papers at the court house.'

"Most people have little taste for court procedure. And never has a customer responded to the invitation to accompany me to the court house to enter suit. This little stunt gets the money from even the hard ones; but in some instances, others have held out still farther. In this event I have actually gone ahead to the

***T**o collect money from a debtor who makes a business of staving off creditors as long as possible is an art that requires both tact and diplomacy. In this article is explained how one sheet metal contractor successfully meets every objection that the debtor can offer for non-payment of the bill.*

*He shows in this article how "hard boiled" debtors will endeavor to bluff him out and how he in turn switches the tables on them and makes them pay in spite of themselves. It's all in the way you handle them whether they pay or not, thinks this sheet metal man. When they know they can't bluff you, they will pay without much complaint.*

court house and obtained proper papers to enter suit.

"I then go again to the customer with papers and say, 'Did you ever see any papers like these? Here, sit down and let's look these over together; I just want to be sure that you understand what you are up against when you are sued.'

"This action often brings a burst of temper from the customer, but at the sight of the legal papers he cools down to inquire, 'Why can't you wait a day or two. I'll raise some money sure.'

"That is my cue to explain, 'Sure, I'm no officer. I didn't come to serve these papers; I just came to make certain that you understood the situation. You come in and take care of this matter and I'll stop proceedings without any additional cost

to you.'"

The collection methods of this dealer may be quite different from those generally used, but probably it is their unique features that bring results. And, after all, it's results that count. Doremer's collection results are better understood when we know that he has more than four hundred active accounts of customers without losing any of any sizable value and without ever having to actually go to court to recover any account, the first step of the suit being all that is necessary to get some action.

#### **Gary District Indiana Sheet Metal Meeting to Be Held in Hammond October 21**

A meeting of the Gary District of the Indiana Sheet Metal and Roofing Contractors' Association will be held in Hammond, Ind., on the night of October 21st.

The Indiana sheet metal and warm air heating contractors are making excellent progress with their association. They are staging a real comeback and getting themselves into a position where they

will soon be able to render some real service to their members.

The district meetings held throughout the year in various parts of the state have been a complete success.

It is hoped that everyone in the Gary district and as many as possible from the other districts nearby will present themselves at the Hammond meeting. There will be a good dinner and an excellent speaker, according to word from Harry Jones. You know that when Harry says it's going to be good it always is.

If you have had some unusual experience in collecting hard accounts, why not tell us about it so that we can tell others? Everybody will gain.



A. Kealer  
Associate Editor

# Joint and Seam Construction For Cornice Work

By A. Kealer  
Instructor, Washburn Trade School

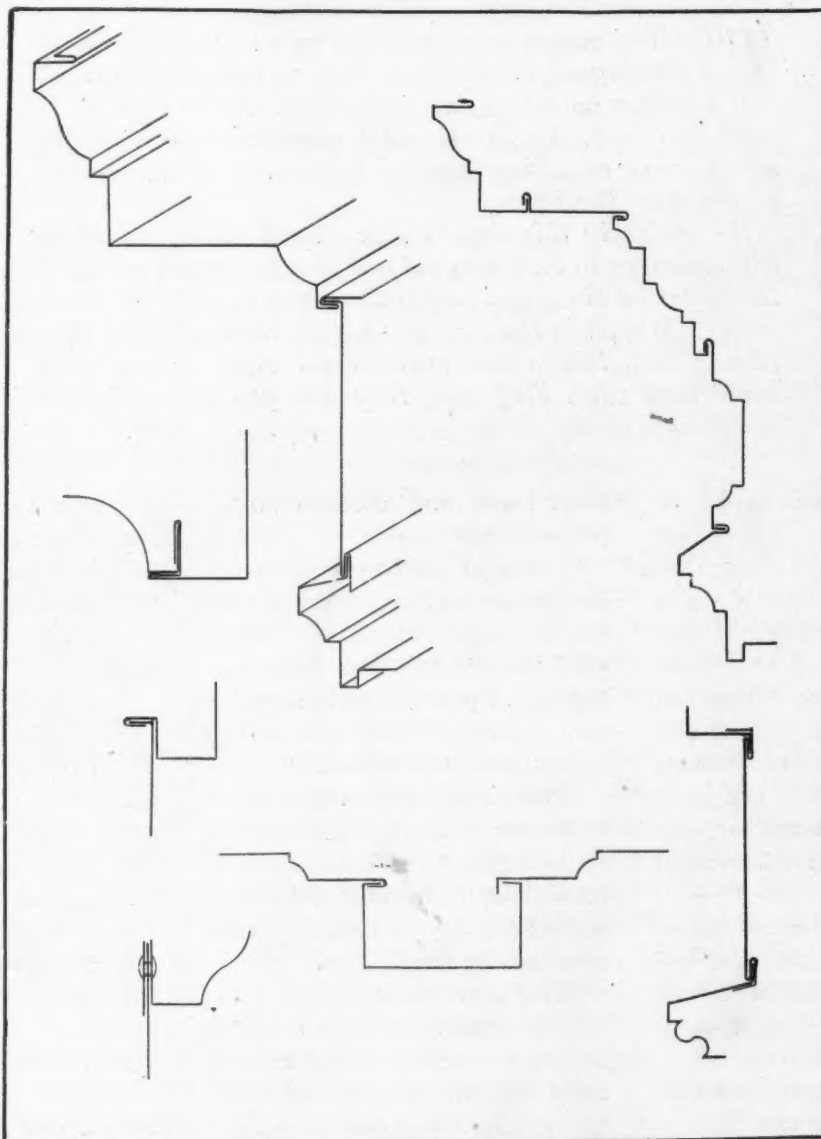
**V**ARIOUS joints and seams for cornice work. The designs on this plate show some of the joints generally used in cornice work, which in all probability will be of some help to your correspondent.

The rough sketch he sent in, without any details, does not help to give him a definite solution. Likewise about the sketch for the round pipe offset, half of the necessary information is missing. While he gave all the horizontal dimensions, he omitted the vertical dimensions entirely. For a proper solution of any problem, all the details are essential.

Of course, the fault is not always carelessness or oversight on the part of the person seeking the information. In a good many cases it is

just plain lack of knowledge of the fundamental principles underlying

any problem in sheet metal pattern drafting.



One will often hear the remark made: I have several books on pattern drafting, but what I would like to know is not in the book. Which illustrates the point that most people neglect to study the fundamental principles in connection with sheet metal pattern drafting.

With so many opportunities offered by the local, state and federal governments to encourage industrial education throughout this country and with such excellent correspondence courses like the St. Louis Technical Institute and others, it behooves every sheet metal worker to increase his knowledge and experience in his chosen vocation and advance

This Is a Partial Answer to the Problem of E. W. Robinson, Bridgeton, New Jersey. The Remainder Will Appear Next Week.

# Dealer MERCHANDISING BOARD

## For Premier

IT IS GENERALLY conceded to be poor policy to interfere when a man and his wife are fighting, for in the end they generally combine forces and lick the intruder. By the same token, there are many men in the warm air industry who constantly say things about the industry who would fight at the drop of the hat if someone on the outside made the same remarks.

There is much to be done before the warm air industry takes its true place in the spotlight. Yet, many things have been done and are being done which stamp the executives behind the moves as progressives of the highest order.

A few years ago Dodge Bros. surprised the world of business by placing a dealer on the board of directors. The Premier Warm Air Heater Company, Dowagiac, Michigan, has gone them one better by creating a dealer merchandising board. At the present time no little amount of comment is being heard in merchandising and advertising circles over a recent move of the Premier Warm Air Heater Company.

At the request of the company during the 1929 dealer sales convention held in Dowagiac last spring five Premier dealers from as many different sections of the country were elected by their fellow dealers to serve as members of the Premier Merchandising Board. So far as is known, this was the first time in the history of the warm air industry that a manufacturer has seen fit to take his dealers into consultation on merchandising problems.

The dealer members are from five widely varying sections of the country. Carl Roelle comes from Columbus, Nebraska, a typical rural trading center. Jack Stowell is located in the intensely worked suburban territory about Chicago. Alex

Friedman of Detroit knows metropolitan and racial conditions in the large city from long and bitter experience. Carl Mueller comes from Findlay, in the heart of industrial Ohio where furnace companies are thick as flakes in a snowstorm. Ed



### He Avoids Business Ruts. In His Spare Moments He's Sales Manager of Premier

Brandes hails from Madison, Wisconsin, a state capital, college town and city of fine homes. The opinions and criticisms of these five men are thus of greatest value in determining the suitability of a sales plan for the country as a whole or by sections.

The merchandising board has been busy through the summer working on a new sales plan for 1930. The first session of the board was held at Dowagiac during the latter part of September, when the

new 1930 sales plan was unanimously approved by these dealer members.

Testing products at the expense of the consumer and testing sales plans at the expense of the dealer in this age of hurry and bustle to get new products on the markets and new plans into effect is a common fault of many industries, including the furnace industry. Quick over-night results are apparently preferred to the slower but more lasting results of trial and error before launching a new product or sales plan.

The Premier Warm Air Heater Company, it appears, has been thoroughly awakened to the weakness of this procedure. They have determined to renounce the generally accepted way of doing things and have turned to a policy of knowing definitely what their product will do under any and all conditions and knowing exactly what can be expected of a sales plan before making a new product or plan public to both dealer and consumer.

For more than a year, in line with this plan, five Premier DeLuxe heaters have been fired under every condition of climate and temperature with results closely checked and tabulated.

All sales plans affecting the dealer are not put into operation until passed upon and approved by this group. At all times during the building of a dealer sales plan they are consulted by correspondence, and when the plan has been worked up into such shape as to allow a presentation, these five men are called together at Dowagiac when the final drafting of the plan is done.

# Progressive Exploitation Brings Added Furnace Sales

## City Celebration Gives Dealer His Chance

**L**AST Labor day the citizenry of Marysville, Kansas, turned out to view a big parade and celebration, and, of course, B. G. Guffee, a wide-awake furnace dealer, saw an opportunity to exploit his wares. Mounting a large warm air furnace on a truck, decorating it with crepe paper and using a window trim dealer help, he made a very attractive float for this parade, which passed up and down the main streets of Marysville.

Just a word or two about Mr. Guffee, better known as Lem, is necessary. Lem is a real warm air furnace specialist. Every job he puts in is a fine installation and he gets his price. Every job is giving satisfaction, and as a consequence people for forty miles around Marysville, Kansas, call up Lem when they need a new furnace or furnace repairs. Lem is one of the few furnace men who finds business good and has more orders than he can take care of.

In talking to Lem Guffee you will learn that satisfaction is the most important element in furnace installation. He will tell you to bank on and sell the Standard Code job; to try to

make every installation just a little better than the one that preceded it.

In the accompanying photograph, which shows the truck, stands, reading from right to left, John Bashan, the Midland Furnace Company representative, who assisted Mr. Guffee in making plans for the Labor Day celebration. Next, Lem Guffee himself. Lem's exploitation does not stop with outdoor display. His place of business is well kept and neat and clean.

His windows are trimmed with his manufacturer's furnace and window trim, which is changed at various intervals. A woman customer can enter Lem Guffee's place without fear of soiling or tearing her clothing.

Mr. Guffee is a business man and a warm air heating specialist worthy of imitation.

### International Heating Exposition Scheduled for January, 1930, Philadelphia

An International Heating and Ventilating Exposition is to be held in the Commercial Museum, Philadelphia, January 27th to 31st, 1930, during the period of the 36th annual meeting of the American Society of Heating and Ventilating Engineers. This will be an important meeting.

E. B. Langenberg of the Langenberg Manufacturing Company, St. Louis, F. R. Still of the American Blower Company, Detroit, and H. C. Murphy, of the Reed Air Filter Company, Louisville, are members of the advisory committee, while on the cooperating committee we find the names of C. E. Hall, Hall-Neal Furnace Company, Indianapolis, and H. T. Richardson, of Richardson & Boynton Company, New York.

Charles F. Roth, with offices in the Grand Central Palace, New York City, is the manager of the exposition.

Many of the papers pertaining to warm air heating presented at the meeting will appear in these pages. Look for them.



The Float Used by Mr. Guffee During the Celebration

# LOW CHIMNEYS

## How They Affect the Sale and Success of Warm Air Heating Systems

By L. W. Millis

OUR attention tonight is to be directed to an ultimate understanding of why houses exactly alike, *except the chimneys*, may require different-sized furnaces.

In order to establish in our minds the properties and office of the chimney we will rehearse some of our previous studies on chimneys. You already know that the height of a chimney creates the draft or suction needed to draw the required air through the bed of fuel. The more dense the bed of fuel or the deeper the charge of coal, the greater the draft should be. Therefore, the higher the chimney should be. The larger the fire is, assuming the same depth of fuel bed, the larger the cross section or area of the chimney must be. The relation of these to the heating requirements of the house can be properly arranged

while the house is under construction. But when you examine a house and find a chimney manifestly inadequate, you meet a heating problem of the first magnitude.

If you sell a furnace within the ordinary rating of the chimney, you may fail to heat the house. You, of course, know that the hotter the chimney gets the stronger the draft will be, but it takes time to get a chimney hot and also it requires extra fuel. You are all familiar with jobs that require several hours to get enough fire going to warm the house, while others heat up quickly. Your problem in such a house is to be able to select the equipment that will give the best service possible. You must also be able to decide in some cases whether it is better for you or your competitor to get the contract. It is my purpose to try to show you how to determine in a fairly exact manner,

and without the use of a draft gauge, the limitations of the chimneys you find already installed.

In order to do this, I can think of no way to talk chimney language except to use the expression, "inches of water." Now don't panic. It is no more mysterious than B.t.u. and we lived through that. The draft that a furnace requires and the draft a chimney will give are both expressed in the same terms; namely, "inches of water." It should, therefore, be possible to compare them with reasonable accuracy. So far as I know there is no publication setting up such a comparison.

A column of warm gas in a chimney (or anywhere else) weighs less than a similar column of cold air outside of the chimney. It, therefore, has the power to draw air through the bed of fuel. This difference of pressure will balance a

\*Warm Air Study Club of Security Stove & Mfg. Co.

TABLE NO. 1

Flue temp at collar Degrees.	Average temp. in chimney Degrees	Draft per foot of flue height in inches of water			
		Outside Temperature			
		At 0 Deg.	At 30 Deg.	At 50 Deg.	At 70 Deg.
300	100	.00216	.00114	.00053	.00009
450	200		.00333	.00272	
500	200	.00435	.00345	.00280	.00255
650	300	.00580	.00494	.00433	.00380
700	300	.00596	.00500	.00450	.00385
800	400	.00680	.00600	.00540	.00500
850	400	.00700	.00618	.00557	.00515
900	400	.00720	.00630	.00570	.00525

TABLE NO. 2

Sq.Ft.of grate in furnace	Lbs. coal at 5 lbs. per hr.	Inches Draft req'd at 5 lb.rate	Lbs. Coal at 3 lbs. per hr.	Inches Draft req'd at 3 lbs. per hr.	Height of Chimney above Grate			
					26 ft.	30 ft.	40ft.	
					Draft of Chimney in Inches of Water at an assumed temp. of 300 degrees			
					.155	.179	.238	
1.22	6.1	.177	3.6	.151	minimum inside size of chimney			
					8X8	8X8		
1.97	9.8	.189	5.9	.154	8X8	8X8		
2.64	13.2	.192	8.	.158		8X8	9X12	
3.17	15.8	.195	9.5	.162		8X8	9X12	

column of water of some certain height. Consequently the draft of a chimney is expressed in "inches of water."

Table No. 1 is compiled from such authorities as I have been able to comprehend and adapt to our use. It is necessary to assume some temperature on which to base operations. Much of the chimney literature gives "flue temperatures," but fails to state at what point in the chimney the temperature is found. Table No. 1 assumes certain temperatures at the collar of the furnace and also assumes an average between that point and the top of the chimney. The table gives the decimal inches of water per foot of chimney height. In general, low flue temperatures are less wasteful than high temperatures.

Reference to the table indicates that in zero weather a chimney with 900 degrees at smoke collar will give about three times as much draft as at 300 degrees. But it costs money to throw such hot gases out of the chimney top. It also takes a long time to build up fire enough to get such a temperature.

By the use of Table No. 1 we can determine the power, or draft, of a chimney already in the building. Assuming, of course, that the chimney is free from cracks and bad offsets in which mortar or soot can lodge. Now, if we can ascertain how many "inches of water"

furnaces require, we can balance one against the other with reasonable accuracy.

The November and December issues of the *Aerologist* in the year 1926 contained a method of determining approximately the "inches of water" required by a warm air furnace, and is as follows:

Let A equal the depth of fuel in the firepot expressed in inches.

Let B equal the rate of combustion (pounds of fuel burned per hour per square foot of grate).

Let C equal length of fire travel in feet from the top of the fuel bed to the smoke pipe.

Let D equal number of right angle turns of gas travel between fuel bed and smoke pipe.

Then

$$\left. \begin{array}{l} A \times B \times .001 \\ \text{Plus } C \times .001 \\ \text{Plus } D \times .03 \end{array} \right\} \text{ equals}$$

Draft required as shown on gauge expressed in inches of water.

Let us suppose a furnace with firepot twelve inches deep and that it requires five pounds of coal per square foot of grate per hour to create sufficient heat. Also suppose that it is eight feet from the top of fuel to the smoke collar and that there are three right angle turns within the furnace.

Then

$$\begin{array}{l} A = 12 \\ B = 5 \\ C = 8 \\ D = 3 \end{array}$$

Substituting these figures for the letters in the formula, we have:

$$\begin{array}{rcl} 12 \times 5 \times .001 & = & .060 \\ 8 \times .001 & = & .008 \\ 3 \times .03 & = & .090 \\ \hline & & .158 \end{array}$$

The furnace, therefore, requires a chimney having a draft equal to .158 "inches of water." However, smoke pipe with elbows will add not less than .032 inches, making a total of .19 inches required in the chimney.

Perhaps you have already caught the idea that a larger grate area and a thin fuel bed will give equal heat (theoretically) and require less draft. Suppose that we use a larger grate so that the fuel needs to be only seven inches deep and that the rate can be three pounds per hour.

Then

$$\begin{array}{rcl} 7 \times 3 \times .001 & = & .021 \\ 8 \times .001 & = & .008 \\ 3 \times .03 & = & .090 \\ \hline & & .119 \end{array}$$

Add smoke pipe as before

$$.032$$

$$.151$$

Therefore, a chimney with .039 inches less draft can be used and give better results than with the smaller furnace using a deeper bed of fuel. During the past two winters I have followed this plan where circumstances permitted. In order to make the information available for those who have no draft gauge,

I have created Table No. 2, which is plain enough to enable a furnace man to "size" his furnace to the chimney or to pass up the job if he can not "balance" the requirements.

Let us suppose that a certain house could be heated with a furnace having a grate area of 1.22 sq. ft. if five pounds of coal per sq. ft. (equal to 6.1 lbs. coal) are burned per hour. But the chimney is only 26 ft. from grate line to top of chimney. The furnace will require a draft of .177 "inches," while the chimney has only .155 "inches" after it gets up to a temperature of 300 degrees. Manifestly it would be unwise to install that size furnace. If, however, the chimney is 30 ft. high it would be a safe furnace to use.

Now let us see what can be done with the 26-ft. chimney. Reference to Table No. 2 shows that a furnace with 1.97 sq. ft. of grate will burn almost the same amount of coal at a three-pound rate (5.9 lbs. as compared with 6.1), and only requires .154 "inches" of draft and comes within the capacity of the 26-ft. chimney. Therefore, you can sell your prospect a furnace that will give him proper heat, notwithstanding the chimney is not as high as it really should be.

The inside sizes of chimney given are calculated to carry the amount of gas the given size will carry at 300 degrees temperature. You will note that a draft gauge is not needed to use Table No. 2.

It is possible that you want to know what value Table No. 1 has. It is useful to a man trying to find out what a chimney will do on a zero day, although it may only be 30, 50 or 70 degrees outside. It is necessary to have a draft gauge to get accurate comparisons.

Suppose you find a chimney 30 feet high. You will build a little fire and get a temperature at furnace collar of 500 degrees and 200 degrees in chimney and 70 degrees outside. Suppose your draft gauge then shows .0765 "inches." Then,  $.0765 \div 30 \text{ ft.} = .00255$  "inches" of draft per foot of height. The table verifies the draft. Let us assume that the furnace will require .20

"inches" of draft in zero weather and it is assumed that a collar temperature of 650 degrees will be permissible. As the draft gauge indicated a draft of .00255 at 70 degrees, we may expect to obtain .0058 "inches" at zero under the conditions we have assumed. Then  $.0058 \times 30 \text{ ft.} = .174$  "inches" of draft. The furnace requires .20 "inches." Consequently,  $.20 - .174 = .026$  shortage. Either the chimney should be higher or the chimney must be heated to a higher temperature. This last increases fuel cost and also it takes a long time to get the chimney hot enough to get the furnace warm enough to heat the house.

In all the foregoing it is assumed that the chimneys are tight and capable of creating their rated draft. As a matter of fact, a great many chimneys have defects (visible and invisible) which reduce their ability to create draft. Many of these defects have been discussed in various articles in the AMERICAN ARTISAN.

The Warm Air Study Club or the Security Stove and Manufacturing Company have contributed articles appearing

March 31, 1923  
April 7, 1923  
April 14, 1923  
May 12, 1923  
June 2, 1923  
October 8, 1927  
December 11, 1927

I want to urge upon you that this discussion is not an argument in favor of inefficient chimneys. It is only intended to help you to give the unfortunate house owner a heating plant that will answer, and also to enable you to determine when it is unsafe to sell even the best of heating plants.

**Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912,**

of AMERICAN ARTISAN, published weekly at Chicago, Ill., for October 1, 1929. State of Illinois, County of Cook—ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Etta Cohn, who, having been duly sworn according to law, deposes and says that she is the business manager of AMERICAN ARTISAN, and that the following is, to the best of her knowledge and belief, a true statement of the

ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher — Porter-Spofford-Langtry Corp., 139 North Clark Street, Chicago, Ill.

Editor—George J. Duerr.

Managing Editor—

Business Manager—Etta Cohn.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Porter-Spofford-Langtry Corp., 139 N. Clark St., Chicago, Ill.

H. H. Bede, 139 N. Clark St., Chicago, Ill.

J. C. Langtry, 139 N. Clark St., Chicago, Ill.

F. D. Porter, 139 N. Clark St., Chicago, Ill.

C. W. Spofford, 5 S. Wabash Ave., Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

American Artisan and Hardware Record, Inc.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders or security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than so stated by her.

5. That the average number of copies of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is. (This information is required from daily publications only.)

ETTA COHN,  
Business Manager.

Sworn to and subscribed before me this 20th day of September, 1929.

(Seal) SARAH B. BOYNTON.

(My commission expires October 16, 1932).

### Central Alloy to Acquire Interstate Steel & Iron Company

The Central Alloy Steel Corporation of Massillon, Ohio, is now perfecting plans to acquire the Interstate Iron & Steel Company, Chicago.

Acquisition of the Interstate holdings will bring together properties having combined assets of more than \$92,000,000 and will strengthen Central's position in the alloy steel industry.

The Interstate Iron & Steel Company operates plants at East Chicago, Indiana, and South Chicago, having a capacity of over 400,000 tons of finished products a year.

The Central Alloy Steel Corporation specializes in high grade steels. In 1928 the corporation became a party to an agreement between several American interests and the Krupp Works of Germany under which the Krupp Nirosa Company had been formed to act as agent between American alloy steel makers.

In commenting on the proposed acquisition, F. J. Griffiths, chairman of the board of directors of the Central Steel Corporation, declared that the plants of the Interstate are well adapted to the production of alloy steel and its facilities will greatly strengthen the position of Central Alloy in the Chicago district, particularly with reference to the corrosion resisting alloys. As a result, he added, Central Alloy's toncan iron will now be readily available to western consumers, notably the railroads and the petroleum district.

### Berger Has Useful Wall Card with Convenient Tables

The Berger Brothers Company, 229 Arch Street, Philadelphia, Pa., have recently prepared for distribution among sheet metal contractors an exceedingly useful shop card having several tables of everyday use to the sheet metal contractor. The card is so arranged that it can be hung up over the desk and thereby made available for ready reference.

A request for one of these cards sent direct to the company will be promptly filled. No charge is made for them.

### Heating Systems Corp. Begins Production of Mechanical Heating Unit

Heating Systems Corp., Joliet, Illinois, is now in production on its new mechanical warm air heating units. The one shown in the illustration is the first of five that are being built in Joliet.

It is a welded steel job. It weighs approximately 2½ tons, is built of ¼ inch boiler plate, is electrically welded throughout, with the exception of the center joint, which is a special design.

The unit is so constructed that it is possible to take it through any 3t ft. by 7 ft. door. The heater stands 83 inches tall, 60 inches wide and 105 inches long, is supplied with heavy rocker grates and two shaking levers, permitting the shaking of either the front or rear grate section.

It is fire brick lined and has a fire brick protecting collar around the neck where gases enter into a secondary combustion chamber, also fire brick protecting collars where gases pass into radiators. Each

radiator has four inlets, and cast baffles are placed therein for directing the gases. Angle irons are welded onto the side of body acting as shields for the directing of the air flow over the heater.

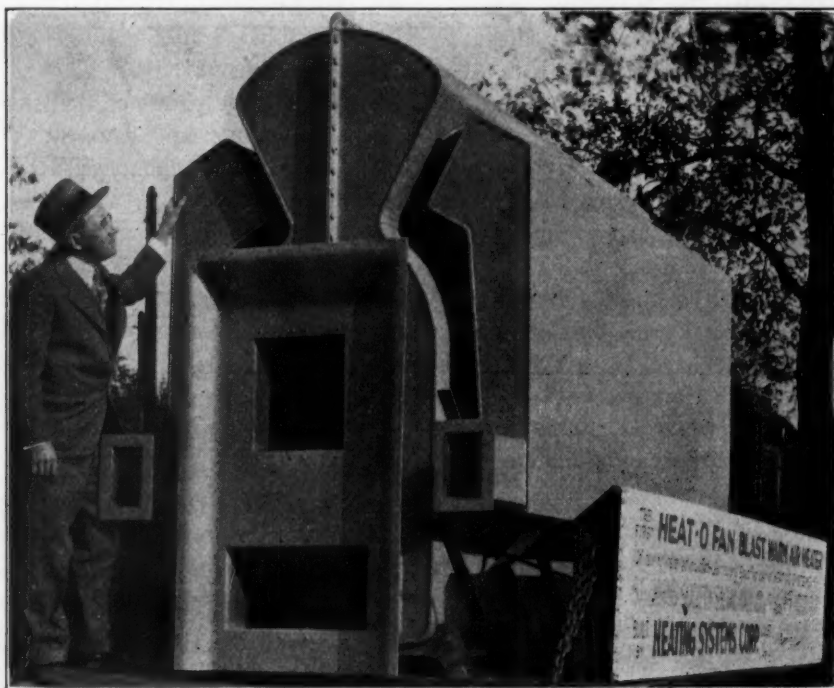
Two cleanouts are provided for in the radiators and the design of the heater is such as to permit the radiators being turned so as the smoke outlet can be taken from the front instead of the back.

It is suitable with oil or gas because of the quick heat transfer and so designed to take care of any undue expansion of rapid temperature changes.

The capacity of this heater on the basis of a combustion rate of 8 pounds of coal per square foot of grate. The heater has a capacity of 12,000 CFM from zero to 120 degrees. There are two sizes, one approximately 40 per cent smaller than the one described.

### W. C. Markle to Speak at Metal Branch Meeting

W. C. Markle, secretary of the National Association of Sheet Metal Contractors, will have something interesting to say to the members of the Metal Branch of the National Hardware Association. His remarks



The New Mechanical Heating Unit of Heating Systems Corporation and Its Inventor, R. W. Menk

will concern themselves with the manner in which sheet metal distributors can more fully cooperate with sheet metal contractors.

The meeting will be held October 22nd in the Ohio Avenue hall, ground floor of the Hotel Blenheim. Chairman Schoedinger will preside.

On Tuesday at 2 p. m. the regular meeting of the Metal Branch will be held in the Ohio Avenue hall, which will be attended by representatives of the mills, sheet metal distributors and hardware wholesalers handling sheet metals.

One of the principal subjects for discussion will be the question of holding a Trade Practice Conference under the auspices of the Federal Trade Commission, at which time Honorable M. Markham Flannery, Chairman of the Trade Practice Division of the Federal Trade Commission, Washington, D. C., will address the meeting.

#### **Hart & Cooley Tells Why They Have Enlarged Their Facilities**

The Hart & Cooley Manufacturing Company, New Britain, Connecticut, has recently issued a very attractive booklet entitled "Triple Service" in which they describe their reasons for having enlarged their facilities.

A short but interesting written history of the business is given, the location of the three plants and why they are located where they are.

Another very interesting feature of the booklet is the pictures of the men who built the business and those who will carry it on. Pictures of the entire sales force are also included. And you may be sure that the picture of R. W. Blanchard, president and sales manager, occupies a prominent place among this sales group.

#### **TOO MANY SHOPS**

(Concluded from Page 55)

the subject I always came back to the same conclusion: that there is a need for a live sheet metal man in this town. After I found that I could not interest any of what were

then my employers in letting me share their business, I decided that the only way I could get to be of the greatest possible service to the community and make a good living for myself and family, was to go into it on my own. I had then every reason to believe that there is plenty of work to be done in this town, and since I've gone into it on my own I have had no occasion to change my mind. While those alleged competitors of mine are bemoaning the fact that sooner or later I must fail, because there is not enough business to be had, I'm out getting business which they don't even know exists. I'm sawing wood while they're warming the seats in their shops. And now, if they will just continue to warm those seats a little longer I will have things my own way."

So you see, it's not a question of how many others there are in the field as it is a question of how well those who are there already are filling the bill. In the case mentioned I happened to know that the young man was eminently successful in his venture. In spite of the fact that one of the largest factories in the town had moved away—it is just a small town, too—and in spite of the fact that his seven competitors had prophesied failure for him he established his business on the firm foundation of filling a real need, and none there was who could say him nay. Four of his competitors went out of business shortly thereafter. The remaining three finally reestablished themselves after a fashion, but before they were able to do this he had "captured the town," so to speak, and was soon recognized as the leading sheet metal man there.

A lot of men have their eyes on a place where they would like to live. Then because they have not the means to live in the place of their choice without working, they decide to enter business there, instead of selecting a place to set up in business where there is a real need for the kind of service which they can render. That is perhaps one of the reasons why the business mortality rate is as high as it is in the sheet

metal and warm air heating industry.

There is only one yard stick with which to measure the chance of success of any business in any locality and that is, is there a need for the kind of service the business will render and will the business be able to render that service to the satisfaction of those who will be required to pay for it?

The young man in question would, indeed, have had slim pickings had any two of his competitors been actively engaged in seeking out business in the town. But his investigations indicated to him a condition which contained opportunity for the right man and determined that he would be that man.

#### **Stibloy a New Galvanized Iron Protective Liquid Metal Compound**

Liquid Metal Products, Inc., 231 South La Salle Street, Chicago, has issued a booklet descriptive of a new product which they term "Stibloy."

This product is a metal compound in liquid form, developed to extend the life of galvanized surfaces by protecting them from the effects of atmospheric conditions, and from the damage caused by exposure to gases, acid fumes, smoke, and brine.

According to the manufacturer's description of the product, it is not a paint, but acts as a primer which holds paint, enamel, and lacquer firmly when applied to galvanized metal surfaces before painting, permitting the immediate painting of new galvanized iron. It also acts as a sizing for paper poster signs.

It is said to protect and preserve galvanized roofing, siding, sheeting, guttering, downspouts, wire fencing, air ducts and other galvanized products.

In addition to describing the product in considerable detail, the booklet also contains fac-similes of letters from the Youngstown Sheet and Tube Company and the Sherwin-Williams Company describing the results of tests which these companies have made with the product.

# RANDOM NOTES AND SKETCHES

Kitty—"Jack says he can read me like a book."

Phyllis—"Perhaps he means, dear, that you are a very plain type."

\* \* \*

Miss Merrick, Louisville—"Dad, I want some money for my trousseau."

E. J. Merrick, President National Association of Sheet Metal Contractors (her father)—"But, my dear child, I didn't even know you were engaged."

Miss Merrick—"Good heavens, Dad! Don't you ever read AMERICAN ARTISAN?"

\* \* \*

Beggar to Mrs. Albert J. Wagner, Chicago—"Kind lady, I was not always like this."

Mrs. Wagner—"No. Last week it was your other arm that was missing."

\* \* \*

Art Lamneck, W. E. Lamneck Co., Columbus, was playing alone. Two boys kept following him around the course. At the ninth hole he turned to the boys and said: "You'll never learn to play watching me."

"We're not watching you," said one of the boys. "We're going fishing as soon as you dig up some more worms."

\* \* \*

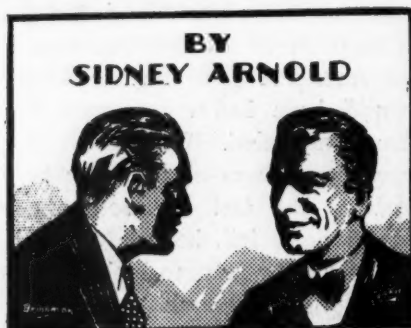
Jack—"So your father demurred at first because he didn't want to lose you?"

Ethel—"Yes, but I won his consent. I told him that he need not lose me. We could live with him, and so he would not only have me, but a son-in-law to boot."

Jack—"H'm! I don't like that expression 'to boot.'"

\* \* \*

I had a very pleasant visit with Harry Jones, Standard Metal Mfg. Co., Indianapolis, on Wednesday of this week. It seems that there was



some kind of an important baseball game in the city on that day, and there may have been some connection between that and the fact that Harry was in town. He said, however, that he came up especially to invite me down to the Indiana Sheet Metal District meeting that is to be held in Hammond on the night of the 21st. I believe him.

\* \* \*

"Please, ma'am, may we borrow your phonograph?"

"Do you want to dance?"

"No, we wanta sleep."

\* \* \*

Mr. L. W. Zahner of A. Zahner & Co., 3041 Wyandotte St., Kansas City, Mo., had the surprise of his life the other day when his neighbor told him this one:

Mr. Zahner's little daughter, Margaret Ann, was paying her new neighbor a visit when the woman remarked about her having such beautiful, auburn, curly hair, and asked her: "Has your mother curly hair?" "No," she answered. "Has your daddy curly hair?" continued the new neighbor. "No," said Margaret Ann, "but our next door neighbor has."

\* \* \*

Harry Rhodes, Grand Rapids—"Remember when we first met in the revolving door at the postoffice?"



Frank Ederle, Detroit—"That wasn't the first time we met."

Harry—"Well, that's when we began going around together."

\* \* \*

Abie—"Dat's a captivating dress Rebecca has on tonight."

Ikke—"Yass; I kepta vating a long time before I bought it for her."

\* \* \*

**Thanks to the Crossword Puzzle**

First Flea—"So you've left that old hyena, eh?"

Second Flea—"Yeah, I've got me a gnu location."

\* \* \*

Disturbed Customer—"The shoes you sold me haven't any tongues."

Salesman (affably)—"Well, you said you like to dress as quietly as possible."

\* \* \*

Frank Mehrings of Meyer Furnace Co.—"This blueberry pie tastes queer, dear."

Mrs. Frank—"Perhaps I put too much bluing in it."

\* \* \*

William Bohnett, 5216 Broadway, Chicago, sheet metal contractor, said to me the other day that a financial man from Wall Street told that "scientist studying fish that live a mile deep in water might first complete study of those living on the surface."

\* \* \*

E. R. Smale, Mohr-Jones Co., Racine—"Why is it that so many men have nervous prostration these days?"

His boss, G. G. Jones—"They've always had it, only we used to call it delirium tremens."

\* \* \*

I had a short chat with Ed Stahler of the G. & S. Stove & Furnace Co., Chicago, on Friday. Ed is recovering from a severe cold. Too much furnace work, I guess.

# THE IMPROVED HYRO "UNXLD" DAMPER QUADRANT

**LARGER BEARING SURFACE**

**REDESIGNED FRAME**



Patented December 23, 1919,  
No. 1,326,096

**MALLEABLE IRON HANDLE**

A new quadrant for regulating dampers in hot and cold air ducts, blower systems, etc., with these improvements:

**LARGER BEARING SURFACE.** The new type quadrant provides a much larger bearing surface for the rod, eliminating the possibility of the rod slipping out, and also doing away with the objectionable rattling of the damper.

**MALLEABLE IRON HANDLE.** The handle of the new quadrant is made of malleable iron.

It is more rigid than the old handle and makes a much neater installation.

**REDESIGNED FRAME.** The frame of the 3/8" Quadrant is smaller than that of the old model. This size was determined to be the most practical for regulating dampers that require a 3/8" Quadrant. The frame of the 1/2" Quadrant will remain the same size.

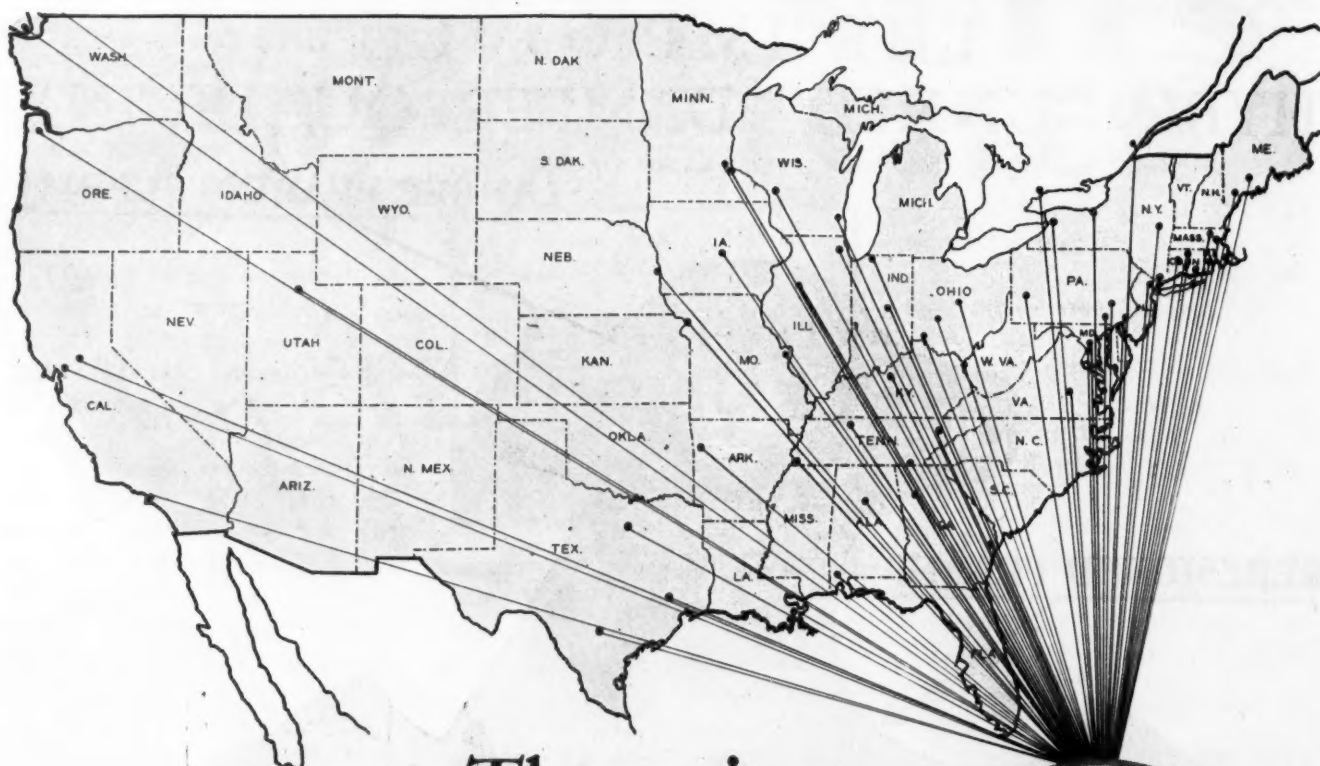
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*Sheet Metal Workers' Tools and Hardware Specialties*

202 VARICK STREET

NEW YORK



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# ASSOCIATION OF AMERICA

*Middletown, Ohio*

# Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

Note: These Prices Are Chicago Warehouse Prices of Metal, to Which Must Be Added Freight to Cities Outside of Chicago.

## METALS

### PIG IRON

Chicago Fdy.,	
No. 2	\$30 00
Southern Fdy. No. 2	31 51
Lake Superior Charcoal	27 04
Malleable	30 00

### FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC 20x28 112 sheets	\$23 50
IX 20x28	25 50
IXX 20x28 56 sheets	14 50
IXXX 20x28	15 50
IXXXX 20x28	17 00

### TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 70
IX 20x28, 40-lb. 112 sheets	29 70
IX 20x28, 25-lb. 112 sheets	22 20
IX 20x28, 25-lb. 112 sheets	25 20
IX 20x28, 20-lb. 112 sheets	20 25
IV 20x28, 20-lb. 112 sheets	23 00

### "ARMCO" INGOT IRON PLATES

No. 8 ga.—100 lbs.	\$4 15
2/16 in.—100 lbs.	4 05
1/4 in.—100 lbs.	3 85

### COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	12 30
Cokes, 100 lbs., base, 20x28	12 40
Cokes, 107 lbs., base, IC	12 75
Cokes, 125 lbs., base, IX	14 75
Cokes, 155 lbs., base, 2X,	8 50
56 sheets	9 25
Cokes, 175 lbs., base 3X,	9 25
56 sheets	10 25
Cokes, 195 lbs., base 4X,	10 25
56 sheets	10 25

### BLUE ANNEALED SHEETS

Base 10 ga.—per 100 lbs.	\$3 35
"Armco" 10 ga.—per 100 lbs.	4 15

### ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs. \$3 85
No. 22	per 100 lbs. 4 00
No. 24	per 100 lbs. 4 05
No. 26	per 100 lbs. 4 15
No. 27	per 100 lbs. 4 20
No. 28	per 100 lbs. 4 20
No. 29	per 100 lbs. 4 45
No. 30	per 100 lbs. 4 55

### "ARMCO" GALVANIZED

"Armco" 24	per 100 lbs. \$6 15
------------	---------------------

### GALVANIZED

No. 16	per 100 lbs. \$4 40
No. 18	per 100 lbs. 4 55
No. 20	per 100 lbs. 4 70
No. 22	per 100 lbs. 4 75
No. 24	per 100 lbs. 4 90
No. 26	per 100 lbs. 5 15
No. 27	per 100 lbs. 5 25
No. 28	per 100 lbs. 5 40
No. 30	per 100 lbs. 5 50

### BAR SOLDER

Warranted 50-50 per 100 lbs.	\$31 25
45-55	per 100 lbs. 30 61
45-55	per 100 lbs. 29 26
Plumbers'	per 100 lbs. 27 26

### ZINC

In Slabs	\$ 7 35
----------	---------

### SHEET ZINC

Cash Lots (600 lbs.)	\$11 75
Sheet Lots	12 75

### BRASS

Sheets, Chicago base	24 1/2 c
Mill base	23 1/2 c
Tubing, brazed, Chicago base	31 1/2 c
Mill base	30 1/2 c
Tubing, seamless, Chicago base	29 1/2 c
Mill base	28 1/2 c
Wire, Chicago base	24 1/2 c
Mill base	23 1/2 c
Rods, Chicago base	22 1/2 c
Mill base	21 1/2 c

### COPPER

Sheets, Chicago base	27 1/2 c
Mill base	26 1/2 c
Tubing, seamless, Chicago base	30 1/2 c
Mill base	29 1/2 c
Wire, plain rd., 8 B. & S. Go.	25 1/2 c
and heavier	25 1/2 c

## LEAD

American Pig	\$7 60
Bar	8 60

## TIN

Bar Tin	per 100 lbs. \$53 00
Pig Tin	per 100 lbs. 52 00

## HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

### ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	7 1/2 c per lb.
Mill board 3/32 to 1/2	7 1/2 c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

### BRUSHES

Furnace Pipe Cleaning	
Bristle with handle each	\$0 75
Fine Cleaning	
Steel only, each	1 25

### CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	55
American Seal, 25-lb. cans, net	2 25
Pecora	per 100 lbs. 7 50

### CHIMNEY TOPS

Wt. Doz.	Price Doz.
4 in.	\$11 00
6 in.	11 50
7 in.	12 50
8 in.	15 00
9 in.	16 50
10 in.	18 00
12 in.	22 00
14 in.	26 00

### CLINKER TONGS

Each	\$1 50
------	--------

### CLIPS

Damper	
No-Rivet Steel, with tail	
pieces, per gross	\$5 50
Rivet Steel, with tail	
pieces, per gross	7 50
Tail pieces, per gross	3 40

### COPPERS—Soldering

3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 45c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

### CORNICE BRAKES

Chicago Steel Bending	
No. 1 to 6B	Net

### CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	20%
28 gauge	25%

### DAMPERS

Yankee Hot Air	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

### ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	3 00
9 inch, each	3 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

### No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10" Disc. on Adams No. 1	
Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

## Adams' Sheet Metal

7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

### EAVES TROUGH

Galv. Crimpedge, crated	75-10%
Zinc, "Barnes"	60%

### ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

### Galv. Terne Steel

Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

### Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

### Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested Solid	70 & 5%

### Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

### Portico

1", 1 1/4", 1 1/2"	45%
--------------------	-----

### Copper

16 oz., all designs	40%
---------------------	-----

### Zinc

All styles	60%
------------	-----

### ELBOWS—Steve Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge.	Doz.
5-inch	\$1 15
6-inch	1 25
7-inch	1 75

### Special Corrugated

5-inch	\$1 00
7-inch	1 40

### Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch	\$1 60
6-inch	1 75
7-inch	3 10

### WOOD FACES—60% off list.

### FENCE

724-4-12 1/2% (100 rods)	\$28 68
1948-4-14 1/2% (100 rods)	43 62

### FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot.	50%
McClellan	50%
Nicholson	50%
Simonds	60%

## FIRE POTS

Geo. W. Diener Mfg. Co.	Re
No. 02 Gasoline Torch, 1 qt.	\$ 5 10
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 00
No. 110 Automatic Gas Soldering Furnace	10 50

## GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$3 00
Tubs (Galv. after made), No. 1	5 70
No. 2	6 50

## GLASS

Single Strength, A, all brackets	85%
Single Strength, B, all brackets	87%
Double Strength, A, all brackets	85%
Double Strength, B, all brackets	87%

## HANGERS

Conductor Pipe	
Milcor Perfection Wire	35%
Milcor Triplex Wire	10%
Eaves Trough	
Milcor Steel (galv. after forming) from List	50%
Milcor Seldock E. T. Wire, List	10%

## HOOKE

Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%

## HUMIDIFIER

"Front-Rank" Automatic	
In single lots	50%
In lots of 10 or more	50-55%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

## LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

## MALLETS

Hickory	per doz. \$2 35
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## MITRES

Galvanized steel mitres	
28 Ga.	50%
26 Ga.	60-30

## NAILS

Cut Steel, base	\$4 00
Wire	
Common Wire, L. C. L.	3 20
Cement Coated	3 20

(Continued on page 76)

# MASHALLTOWN

## Rotary Throatless Shears

ONLY three moving Parts—takes sheets of unlimited width and up to  $\frac{1}{2}$  inch gauge. Cuts curves in any direction—straight—circular or any irregular shape desired. Easy to operate—hand or power—nothing to get out of order—a speedy worker and the shear keeps sharp even after months of hard use.



Other  
MARSHALLTOWN  
Machines  
No. 18 HAND  
POWER  
THROATLESS  
SHEARS—FOR  
EVERY SHOP  
PLATE  
BENDING  
ROLLS  
PRESSURE  
GAUGES  
SPLITTING  
SHEARS  
BEVEL SHEARS  
PUNCH  
PRESSES, ETC.



The No. 10  
Marshalltown  
Throatless  
Shear in  
action

Write to  
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for  
Complete  
catalog

MARSHALLTOWN MANUFACTURING CO.  
MARSHALLTOWN, IOWA

## CHICAGO STEEL SLITTING SHEAR

### LIGHT—POWERFUL DURABLE



Capacity 10 gauge sheets  
Any Length or Width  
Flat Bars 3/16x2"  
Weight 22 pounds

Price \$15.00 Net  
F. O. B. Chicago

Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel. Most indispensable high grade shears made. Equal to other shears selling at over twice the price. **ORDER YOURS TODAY.**

DREIS & KRUMP MFG. CO., 7404 Loomis St., Chicago



## NEW MODEL

### CHICAGO ELBOW MACHINE

NOW READY FOR SHIPMENT  
WRITE FOR FULL INFORMATION

MAPLEWOOD MACHINERY CO.

2634 FULLERTON AVE  
CHICAGO, ILL.



Round  
Corrugated

Plain Round

NEVER MADE WITHOUT THIS

TRADE *F. Dieckmann* MARK

Quality and Service Made 'em Famous

Made of one piece of heavy gauge material, in all styles and angles from 10 to 90 degrees, of 24, 26, 28 ga. ternes, then galvanized after formation.

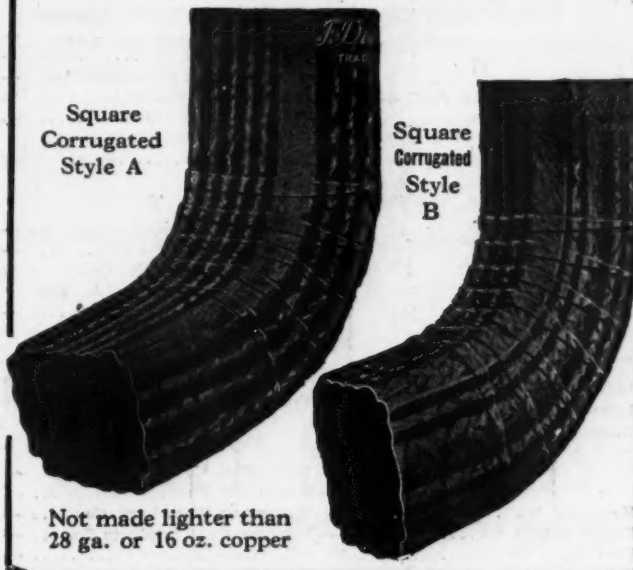
## DIECKMANN Elbows and Shoes

are the standard of the market  
and always give satisfaction

Send for new catalogue 26 showing complete line

The Ferdinand Dieckmann Co.

P. O. Station B, Cincinnati, O.



Square  
Corrugated  
Style A

Square  
Corrugated  
Style B

Not made lighter than  
28 ga. or 16 oz. copper

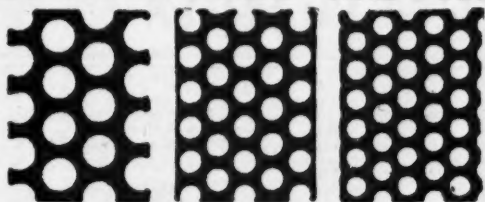
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PASTE		RIDGE ROLL	
Asbestos Dry Paste:		Galv., Plain Ridge Roll, b'did	75-15-5%
200-lb. barrel	\$14 00	Galv., Plain Ridge Roll crated	75-15'
100-lb. barrel	7 50		
50-lb. pail	4 35		
10-lb. bag	1 00		
5-lb. bag	55		
2 1/2-lb. cartons	25		
POKERS, FURNACE		SCREWS	
Each	\$0 75	Sheet Metal	
		7. 1/2x1/4, per gross	\$0 53
		No. 10, 1/2x3/16, per gross	53
		No. 14, 1/2x1/4, per gross	53
POKERS, STOVE		SHEARS, TINNERS' & MACHINISTS'	
Nickel Plated, coil handles, per doz.	1 10	Viking	\$23 00
W'r't Steel, str't or bent, per doz.	\$0 75	Lennox Throatless	
		No. 13	35%
		Shear blades	10%
		(f. o. b. Marshalltown, Iowa)	
PIPE		SHIELDS, ADJUSTABLE RADIATOR	
Conductor		No. 1 "Gem" 11" to 17"	30%
Cor. Rd., Plain Rd., or Sq.		No. 2 "Gem" 14" to 24"	30%
Galvanized		No. 3 "Gem" 25" to 65"	30%
Crated and nested (all gauges)	75-7 1/4%		
Crated and not nested (all gauges)	75-2 1/4%		
FURNACE PIPE		SHOES	
Double Wall Pipe and Fittings	50 & 10%	Galv. 25 Gauge, Plain or corrugated round flat crimp	40%
Single Wall Pipe, Round	50 & 10%	26 gauge round flat crimp	45%
Galvanized Pipe	50 & 10%	24 gauge round flat crimp	15%
Galvanized and Tin Fittings	50 & 10%		
LEAD		SNIPS, TINNERS	
Per 100 lbs.	\$12 50	Clover Leaf	40 & 10%
		National	40 & 10%
		Star	50%
		Milcor	Net
STOVE PIPE		SQUARES	
"Milcor" "Titelock" Uniform Blue Stove		Steel and Iron	Net
25 gauge, 5 inch U. C. nested	11 00	(Add for bluing \$3 per doz. net)	
25 gauge, 6 inch U. C. nested	13 00	Mitre	Net
25 gauge, 7 inch U. C. nested	14 00	Try	Net
30 gauge, 5 inch U. C. nested	10 25	Try and Bevel	Net
30 gauge, 6 inch U. C. nested	11 00	Try and Mitre	Net
30 gauge, 7 inch U. C. nested	13 00	Fox's	per doz. \$6 00
T-Joint Made up		Winterbottom's	10%
5-inch, 28 ga....per doz	\$ 3 40		
All Zinc			
No. 11, all styles	60%		
PULLEYS		STOPPERS, FLUE	
Furnace Tackle....per doz.	\$0 85	Common	per doz. \$1 10
Furnace Tackle....per gro.	8 50	Gem, No. 1	per doz. 1 10
Furnace Screw (enameled)		Gem, flat, No. 3	per doz. 1 00
Malleable Iron Damper	75		
PUTTY		VENTILATORS	
Commercial Putty, 100-lb. Kits	\$3 15	Standard	30 to 40%
QUADRANTS		WIRE	
Malleable Iron Damper	10%	Black annealed wire, No. 9, per 100 lbs.	\$3 20
		Galvanized barb wire, per 100 lbs.	\$ 30
		Cattle Wire—galvanized catch weight spool, per 100 lbs.	\$ 30
		Galvanized Plain Wire, No. 9, per 100 lbs.	\$ 75
REDUCERS—Oval Stove Pipe			
Per Doz.			
7-4, 28-gauge, 1 doz. in carton	\$3 00		
REGISTERS AND BORDERS			
Baseboard, Floor and Wall			
Cast Iron	20%		
Steel and Semi-Steel	33 1/2%		
Baseboard, 1 piece	33 1/2-20%		
Baseboard, 2 piece	33 1/2%		
Wall	33 1/2%		
Adjustable Ceiling Ventilators	33 1/2%		
Register Faces—Cast and Steel			
Japanned, Bronzed and Plated, 4x6 to 14x14	33 1/2%		
Large Register Faces—Cast, 14x14 to 38x42	50%		
Large Register Faces—Steel, 14x14 to 38x42	40%		
VENTILATING REGISTER			
Per gross	\$ 00		
Small, per pair	30		
Large, per pair	50		

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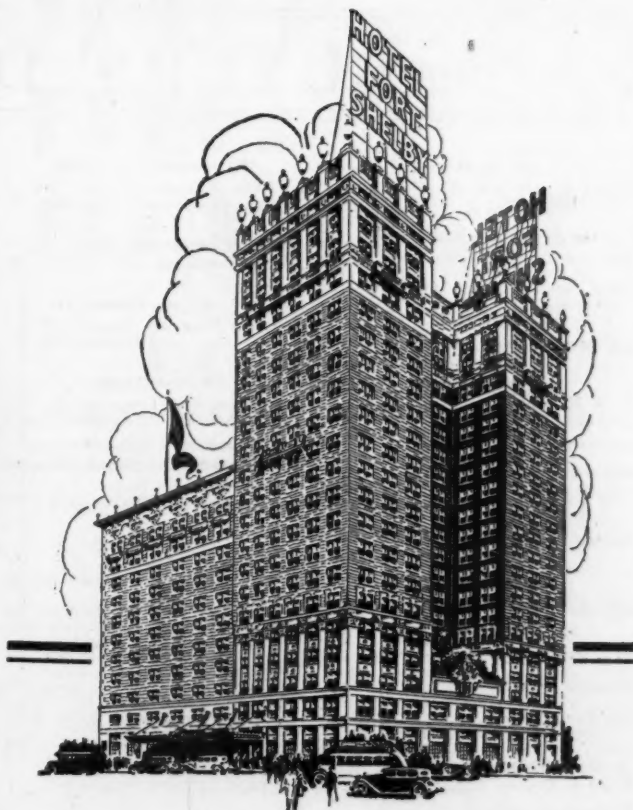
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**Air Conditioning Machines.**  
Heating Systems Corp., Joliet, Ill.  
Watt Mfg. Co., Sterling, Ill.

**Asbestos Paper.**  
Sall-Mountain Co., Chicago, Ill.

**Asbestos Liquid.**  
B. & F. Mfg. Co., Des Moines, Iowa

**Benchies—Steel.**  
Maplewood Machinery Co., Chicago, Ill.

**Blast Gates**  
Berger Bros. Co., Philadelphia, Pa.

**Blowers—Furnace.**  
Lakeside Co., Hermansville, Mich.

**Bolts—Steel.**  
The Kirk-Latty Co., Cleveland, Ohio  
Lamson & Sessions Co., Cleveland, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

**Brakes—Bending.**  
Dreis & Krump Mfg. Co., Chicago, Ill.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

**Brakes—Cornice.**  
Dreis & Krump Mfg. Co., Chicago, Ill.

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**Cans—Garbage.**  
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

**Chaplets.**  
Fanner Mfg. Co., Cleveland, Ohio

**Chimney Tops.**  
Standard Ventilator Co., Lewisburg, Pa.

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National Super Service Co., Toledo, Ohio  
Williamson Heater Co., Cincinnati, Ohio

**Copper.**  
American Brass Co., Waterbury, Conn.  
Rockford Sheet Steel Co., Rockford, Ill.

**Cornices.**  
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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Eller Mfg. Co., Canton, Ohio  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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Howes Co., S. M., Boston, Mass.  
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Parker-Kalon Corp., New York, N. Y.

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H. M. Sheer Co., Quincy, Ill.

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La Salle Machine Works, Chicago, Ill.

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Aeolus-Dickinson Co., Chicago, Ill.

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Lupton's Sons Co., David, Philadelphia, Pa.

**Drills—Electric.**  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

**Drive Screws—Hardened Metallic.**  
Parker-Kalon Corp., 200 Varick St., New York

**Eaves Trough.**  
Barnes Metal Products Co., Chicago, Ill.

Berger Bros. Co., Philadelphia, Pa.  
Eller Mfg. Co., Canton, Ohio  
Lupton's Sons Co., David, Philadelphia, Pa.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
New Jersey Zinc Sales Co., The, New York, N. Y.  
Rockford Sheet Steel Co., Rockford, Ill.

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Dieckmann Co., Ferdinand, Cincinnati, Ohio  
Eller Mfg. Co., Canton, Ohio  
Lupton's Sons Co., David, Philadelphia, Pa.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Rockford Sheet Steel Co., Rockford, Ill.

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Eller Mfg. Co., Canton, Ohio  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

**Flue Thimbles.**  
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**Furnace Cement—Asbestos.**  
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**Furnace Cement—Liquid.**  
Technical Products Co., Pittsburgh, Pa.

**Furnace Cleaners—Hand.**  
J. L. Skuttle Mfg. Co., Dowagiac, Mich.

**Furnace Controls.**  
The Mercoid Corp., Chicago, Ill.

**Furnace Cleaners—Suction.**  
Brillien Furnace Co., Brillion, Wis.  
National Super Service Co., Toledo, Ohio  
Williamson Heater Co., Cincinnati, Ohio

**Furnace Fans.**  
A-C Mfg. Co., Pontiac, Ill.  
Brundage Co., The, Kalamazoo, Mich.  
Heating Systems Corp., Joliet, Ill.  
Lakeside Co., Hermansville, Mich.  
A. H. Robinson Co., Massillon, Ohio  
Warm Air Furnace Fan Co., Watertown, Mass.  
Watt Mfg. Co., Sterling, Ill.  
The, Cleveland, Ohio  
Williamson Heater Co., Cincinnati, Ohio

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**Furnace Rings.**  
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Forest City-Walworth Run Foundries Co., Cleveland, Ohio  
Milwaukee Corrugating Co., Milwaukee, Wis.

**Furnace Switch—Automatic.**  
The Mercoid Corp., Chicago, Ill.

**Furnaces—Warm Air.**  
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American Furnace Co., St. Louis, Mo.  
Brillien Furnace Co., Brillion, Wis.  
Emrich Co., C., Columbus, Ohio  
Farris Furnace Co., Springfield, Ill.  
Forest City-Walworth Run Fdy., Cleveland, Ohio  
Fox Furnace Co., Elyria, Ohio  
Heating Systems Corp., Joliet, Ill.

Henry Furnace & Fdy. Co., Cleveland, Ohio  
Hess Warming & Ventilating Co., Chicago, Ill.  
Homer Furnace Co., Coldwater, Mich.  
Langenberg Mfg. Co., St. Louis, Mo.  
Lennox Furnace Co., Marshalltown, Ia.; Syracuse, N. Y.  
Marshall Furnace Co., Marshall, Mich.  
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May Fieberger Furnace Co., Newark, Ohio  
Meyer Furnace Co., The, Peoria, Ill.  
Midland Furnace Co., Columbus, Ohio

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Mueller Furnace Co., L. J., Milwaukee, Wis.  
Premier Warm Air Heater Co., Dowagiac, Mich.  
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Robinson Co., A. H., Massillon, Ohio  
Standard Fdy. & Furnace Co., De Kalb, Ill.  
Success Heater Mfg. Co., Des Moines, Ia.  
XXth Century Heating & Ventilating Co., Akron, Ohio  
Waterman-Waterbury Co., Minneapolis, Minn.  
Western Steel Products Co., Duluth, Minn.  
Williamson Heater Co., Cincinnati, Ohio  
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Harrington & King Perforating Co., Chicago, Ill.  
Hart & Cooley Co., New Britain, Conn.  
Independent Register & Mfg. Co., Cleveland, Ohio  
Tuttle & Bailey Mfg. Co., Chicago, Ill.

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Tuttle & Bailey Mfg. Co., Chicago, Ill.

**Guards—Machine and Belt.**  
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**Handles—Roller.**  
Berger Bros. Co., Philadelphia, Pa.

**Handles—Soldering Iron.**  
Hyro Mfg. Co., New York, N. Y.

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H. M. Sheer Co., Quincy, Ill.

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Waterman-Waterbury Co., Minneapolis, Minn.

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Alamo Heater Co., Chicago, Ill.  
Standard Fdy. & Furnace Co., De Kalb, Ill.

**Heaters—Domestic Hot Water.**  
Alamo Heater Co., Chicago, Ill.  
Standard Fdy. & Furnace Co., De Kalb, Ill.

**Heaters—School Room.**  
Meyer Furnace Co., The, Peoria, Ill.  
Waterman-Waterbury Co., Minneapolis, Minn.

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Fort Shelby Hotel, Detroit, Mich.

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Mueller Furnace Co., L. J., Milwaukee, Wis.  
Perfect Humidifier Co., St. Louis, Mo.  
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Watt Mfg. Co., Sterling, Ill.

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Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.  
Hyro Mfg. Co., New York, N. Y.

**Metals—Perforated.**  
Harrington & King Perforating Co., Chicago, Ill.

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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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Berger Bros. Co., Philadelphia, Pa.  
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Lupton's Sons Co., David, Philadelphia, Pa.  
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**Nails—Lead Head.**  
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E. L. Miller Mfg. Co., Kansas City, Mo.

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Gerock Bros. Mfg. Co., St. Louis, Mo.  
Miller & Deing, Inc., Brooklyn, N. Y.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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Connors Paint Mfg. Co., Wm., Troy, N. Y.

**Patterns—Furnace and Stove.**  
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Quincy Pattern Co., Quincy, Ill.  
Vedder Pattern Works, Troy, N. Y.


(Continued on page 80)



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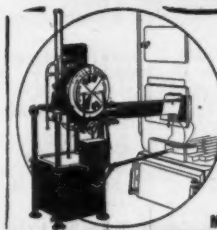
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(Continued from page 78)

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Eller Mfg. Co., Canton, Ohio  
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Meyer & Bro. Co., F., Peoria, Ill.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Mueller Furnace Co., L. J., Milwaukee, Wis.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio

**Pipe and Fittings—Stove.**  
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

**Pipe—Conductor.**  
Barnes Metal Products Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Dieckmann Co., Ferdinand, Ind.  
Eller Mfg. Co., Canton, Ohio  
Lupton's Sons Co., David, Philadelphia, Pa.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
New Jersey Zinc Sales Co., The New York, N. Y.

**Presses.**  
La Salle Machine Works, Chicago, Ill.

**Pipe Covering.**  
Sall Mountain Co., Chicago, Ill.

**Punches.**  
Bertsch & Co., Cambridge City, Ind.  
Interstate Machinery Co., Chicago, Ill.  
La Salle Machine Works, Chicago, Ill.  
Ryerson & Son, Inc., Jos. T., Chgo, N. Y., St. L., Det., Cleve.

**Punches—Combination Bench and Hand.**  
Hyro Mfg. Co., New York, N. Y.

**Punches—Hand.**  
Hyro Mfg. Co., New York, N. Y.

**Putty—Stove.**  
Connors Paint Mfg. Co., Wm., Troy, N. Y.

**Radiator Cabinets.**  
The Hart & Cooley Mfg. Co., New Britain, Conn.  
Tuttle & Bailey Mfg. Co., Chicago, Ill.

**Radiators—Shields.**  
Beh & Co., Inc., New York, N. Y.

**Register Shields.**  
Beh & Co., Inc., New York, N. Y.

**Registers—Warm Air.**  
Auer Register Co., Cleveland, Ohio  
Eller Mfg. Co., Canton, Ohio  
Forest City-Walworth Run Foundries Co., Cleveland, Ohio  
Hart & Cooley Co., New Britain, Conn.  
Henry Furnace & Fdy. Co., Cleveland, Ohio  
Independent Register & Mfg. Co., Cleveland, Ohio  
Ku-No Register Mfg. Co., St. Louis, Mo.  
Lamneck & Co., W. E., Columbus, Ohio  
Meyer & Bro. Co., F., Peoria, Ill.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Mueller Furnace Co., L. J., Milwaukee, Wis.  
Rock Island Register Co., Rock Island, Ill.  
Tuttle & Bailey Mfg. Co., Chicago, Ill.

**Registers—Wood.**  
American Wood Register Co., Plymouth, Ind.  
Auer Register Co., Cleveland, Ohio  
Eller Mfg. Co., Canton, Ohio  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

**Regulators—Heat.**  
H. M. Sheer Co., Chicago, Ill.

**Ridging.**  
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Eller Mfg. Co., Canton, Ohio  
Lupton's Sons Co., David, Philadelphia, Pa.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

**Rivets—Stove.**  
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Lamson & Sessions Co., Cleveland, Ohio  
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Lamson & Sessions Co., Cleveland, Ohio

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Central Alloy Steel Corp., Massillon, Ohio  
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Inland Steel Co., Chicago, Ill.  
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Osborn Co., The J. M. & L. A., Cleveland, Ohio  
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**Roofing—Tin.**  
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Taylor Co., N. & G., Philadelphia, Pa.

**Roofing—Zinc.**  
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St. Louis Technical Institute, St. Louis, Mo.

**Schools—Warm Air Heating.**  
St. Louis Technical Institute, St. Louis, Mo.

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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Parker-Kalon Corp., 200 Varick St., New York

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Parker-Kalon Corp., 200 Varick St., New York

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Marshalltown Mfg. Co., Marshalltown, Iowa  
Ryerson & Son, Inc., Jos. T., Ch'go, N. Y., St. L., Det., Cleve.  
Viking Shear Co., Erie, Pa.

**Sheet Metal Nails.**  
Deniston Co., Not Inc., Chicago, Ill.

**Sheet Metal Screws—Hardened, Self-Tapping.**  
Parker-Kalon Corp., 200 Varick St., New York

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Inland Steel Co., Chicago, Ill.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Rockford Sheet Steel Co., Rockford, Ill.  
Ryerson & Son, Inc., Jos. T., Ch'go, N. Y., St. L., Det., Cleve.  
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**Sheets—Iron.**  
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Eller Mfg. Co., Canton, Ohio  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City  
Ryerson & Son, Inc., Jos. T., Chgo, N. Y., St. L., Det., Cleve.

**Sheets—Tin.**  
Taylor Co., N. & G., Philadelphia, Pa.

**Sheets—Zinc.**  
New Jersey Zinc Sales Co., The New York, N. Y.

**Shingles and Tiles—Metal.**  
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

**Sifters—Ash.**  
Diener Mfg. Co., G. W., Chicago, Ill.

**Sky Lights.**  
Eller Mfg. Co., Canton, Ohio  
Lupton's Sons Co., David, Philadelphia, Pa.  
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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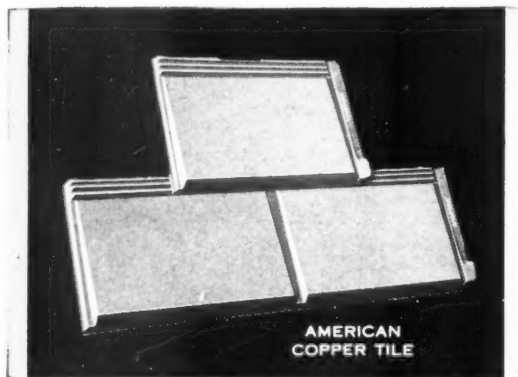
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